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PANAMA CANAL COMMISSION

ANNUAL REPORT

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FISCAL YEAR ENDED SEPTEMBER 30, 1991



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PANAMA CANAL COMMISSION

Balboa, Republic of Panama
OFFICE OF THE ADMINISTRATOR

FROM THE ADMINISTRATOR

It is a pleasure to submit the annual report of the Panama Canal Commission for Fiscal Year 1991. The past year was a very successful one for the Panama Canal. Total vessel transits rose substantially after two years of decline, primarily due to events in the Persian Gulf. Increased Canal traffic, combined with growth in average ship size, boosted Panama Canal net tonnage to 193.1 million tons, the second highest level in Canal history. The resulting record tolls revenue of \$374.6 million represented a 5.4 percent increase over the prior year. Despite the heavier transit load, Canal efficiency remained high with average Canal Waters Time, at 22 hours, held below the agency's 24 hour standard.

During Fiscal Year 1991, important maintenance and improvement projects were accomplished and key decisions were made regarding programs to ensure the long-term efficiency of the Canal. Major projects undertaken included: the overhaul and refurbishment of Gatun Locks miter gates; the widening and deepening of the Canal's Pacific channel entrance; substantial rehabilitation of rail and conductor slot for the locks locomotive tow track system; the ongoing replacement of locks fendering systems with new, substantially improved fenders; and the overhaul of the suction dredge MINDI. Of special significance was the approval by the Commission's Board of Directors of a major multi-phase program to widen and straighten the narrow eight-mile Gaillard Cut area of the Canal. This significant construction effort will begin during the early part of Fiscal Year 1992.

When completed, it will allow virtually unrestricted two-way transit throughout the waterway of even the largest PANAMAX vessels.

The Commission also continued to fulfill its treaty obligations to work toward the orderly transfer of the Canal to the Republic of Panama at the end of this century. An essential aspect of this obligation is the major ongoing effort to hire and train Panamanians in all the various areas necessary to operate and maintain the waterway. Already 87% of the work force, including over half of the Commission's managers and professionals, are Panamanian citizens.

The achievements of the Canal organization attest to the extraordinary contributions made by the dedicated men and women who comprise the Commission work force. Their performance has been a key element in preserving the high quality of service and sense of purpose which represent the legacy of the Panama Canal. As we look to the future, I am confident that the Canal will build on these past accomplishments and continue to provide world shipping with safe, efficient transit service at competitive rates through and beyond the year 2000.



GILBERTO GUARDIA F.
Administrator

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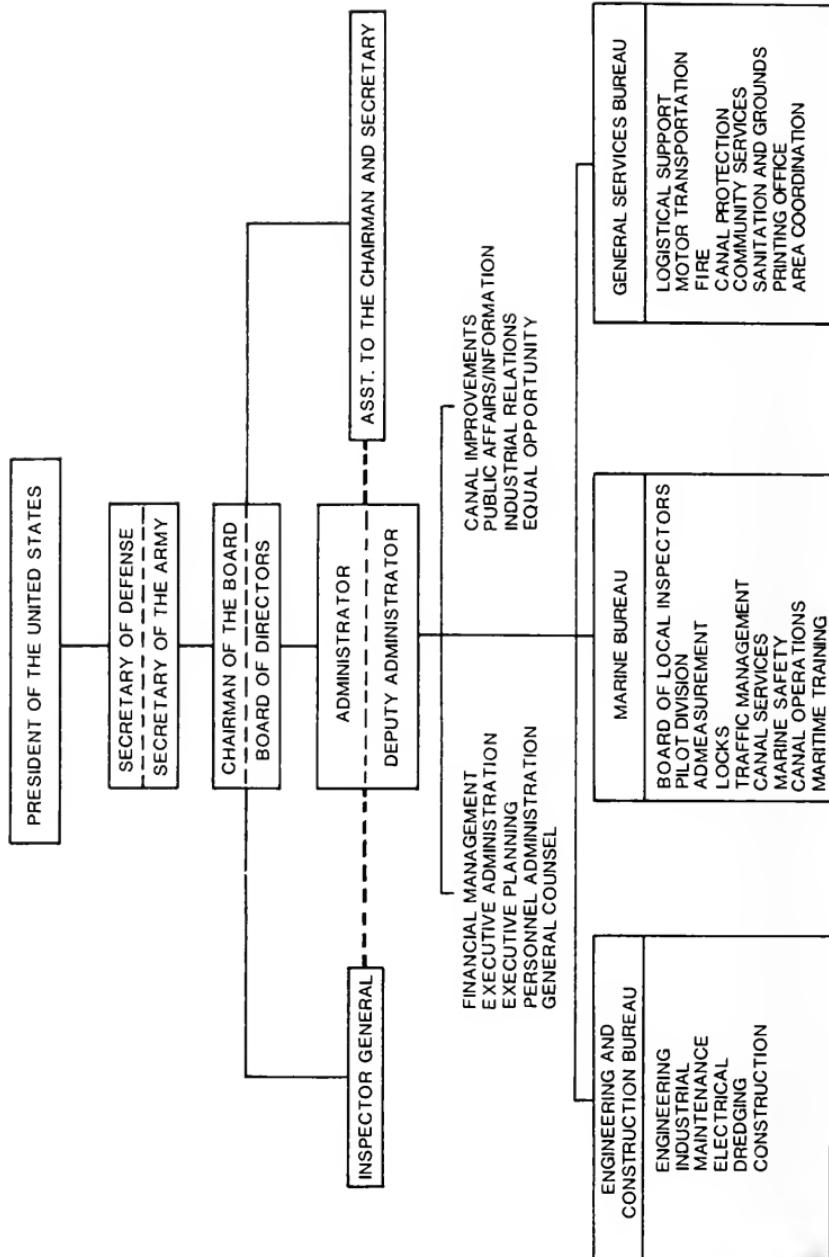
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PANAMA CANAL COMMISSION



INTRODUCTION ORGANIZATION

The Panama Canal Commission is an agency of the Executive Branch of the United States Government, provided for by the Panama Canal Treaty of 1977, and established by the Panama Canal Act of 1979 (93 Stat. 452; 22 U.S.C. 3601 et seq), enacted September 27, 1979. The authority of the President of the United States with respect to the Commission is exercised through the Secretary of Defense and the Secretary of the Army. The Commission is supervised by a nine-member Board. Five members are nationals of the United States appointed by the President with the advice and consent of the Senate. Four members are nationals of the Republic of Panama who are proposed by the Republic of Panama for appointment by the President. Also, as mandated by the treaty, a Panamanian now serves as the Administrator and a United States citizen as the Deputy Administrator.

The Commission was established to carry out the responsibilities of the United States with respect to the Panama Canal under the Panama Canal Treaty of 1977. In fulfilling these obligations, the Commission manages, operates, and maintains the Canal, its complementary works, installations, and equipment, and provides for the orderly transit of vessels through the Canal. The Commission will perform these functions until the treaty terminates on December 31, 1999, at which time the Republic of Panama will assume full responsibility for the Canal.

The operation of the waterway is conducted on a self-financing basis. The Commission is expected to recover through tolls and other revenues all costs of operating and maintaining the Canal, including interest, depreciation, capital for plant replacement, expansion and improvements, and payments to the Republic of Panama for public services and annuities, in accordance with paragraph 5 of Article III and paragraphs 4(a) and (b) of Article XIII, respectively, of the Panama Canal Treaty of 1977. Revenues from tolls and all other sources are deposited in the U.S. Treasury in an account known as the Panama Canal Revolving Fund. The resources in this fund are available for continuous use and serve to finance Canal operating and capital programs which are reviewed annually by the Congress.

THE CANAL

The Panama Canal is a lock-type canal approximately 51 miles long from

deep water to deep water. The minimum width of the navigable channel is 500 feet. Navigable channel depth can vary according to the amount of water available in Canal storage areas; however, the normal permissible transit draft is 39 feet 6 inches tropical fresh water.

Vessels transiting the Canal are raised in three steps to the level of Gatun Lake, the principal source of Canal water, then lowered to sea level again in three steps. The three sets of Canal locks are paired so as to permit simultaneous lockage of two vessels in the same or opposite direction.

Since August 15, 1914, the official date of its opening, the Panama Canal has been serving world trade. Through this fiscal year, a total of 731,784 vessels of all types have transited with 618,975 or 84.6 percent of the total being of the oceangoing commercial class.

TOLL RATES

Toll rates during FY 1991 were: (a) on merchant vessels, Army and Navy transports, hospital ships, supply ships, and yachts, when carrying passengers or cargo, \$2.01 per net vessel ton of 100 cubic feet of actual earning capacity, as determined in accordance with the "Rules of Measurement of Vessels for the Panama Canal;" (b) on such vessels in ballast, without passengers or cargo, \$1.60 per net vessel ton; and (c) on other floating craft, \$1.12 per ton of displacement. These rates have been in effect since October 1, 1989.

A temporary 20 percent surcharge on all tariff rates for tug and linehandling services, implemented on April 1, 1990, was terminated on February 28, 1991. The surcharge, which had been approved by the Commission's Board of Directors, was to offset a variety of unbudgeted extraordinary costs incurred by the Commission as a result of the actions and political decisions of the former Panama regime of General Manuel Noriega.

By treaty, the United States continues to provide to Colombia free transit through the Canal of its troops, materials of war, and ships of war.

BOARD OF DIRECTORS**Ending Fiscal Year 1991**

Honorable MICHAEL P. W. STONE
Chairman, Board of Directors
Panama Canal Commission
Washington, D.C.

Honorable CECILIA A. ALEGRE
Panama, Republic of Panama

Honorable LUIS A. ANDERSON
Mexico, D.F., Mexico

Honorable ANDREW E. GIBSON
Short Hills, New Jersey

Honorable ROBERT R. McMILLAN
Garden City, New York

Honorable ALFREDO N. RAMIREZ
Panama, Republic of Panama

Honorable WALTER J. SHEA
Annapolis, Maryland;

Honorable JOAQUIN J. VALLARINO, Jr.
Panama, Republic of Panama;

Honorable WILLIAM W. WATKIN, Jr.
Brevard, North Carolina

Executive Committee

Honorable MICHAEL P. W. STONE
Chairman

Honorable ALFREDO N. RAMIREZ

Honorable WALTER J. SHEA

Honorable JOAQUIN J. VALLARINO, Jr.

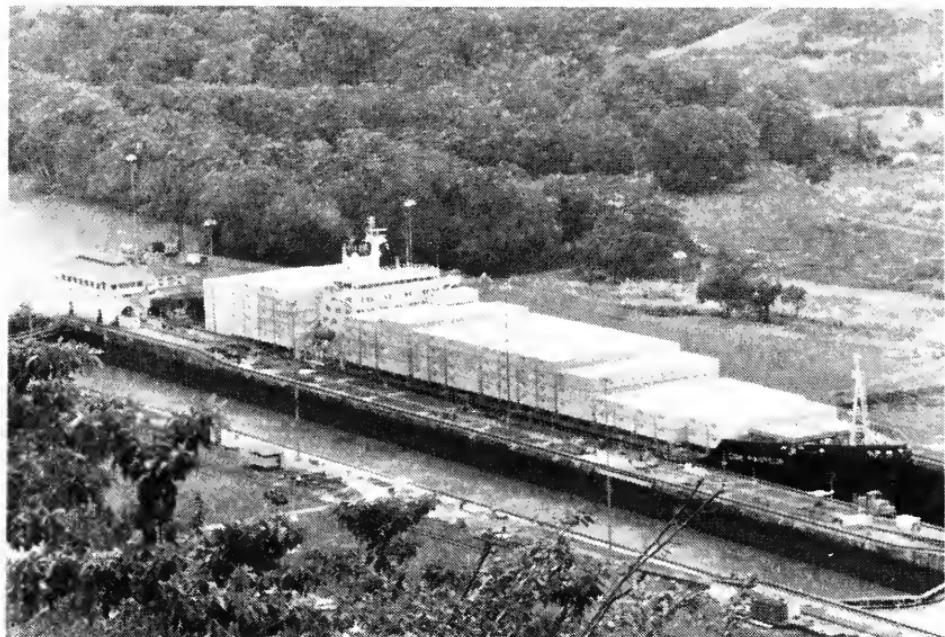
Honorable WILLIAM W. WATKIN, Jr.

OFFICIALS IN THE REPUBLIC OF PANAMA

Administrator Honorable GILBERTO GUARDIA F.
Deputy Administrator Honorable RAYMOND P. LAVERTY

OFFICIAL IN WASHINGTON, D.C.

Assistant to the Chairman and Secretary MICHAEL RHODE, Jr.



Two of the more than 12,700 oceangoing vessels receiving high quality transit service in FY 1991 were the CGM PASTEUR (upper photo), on a maiden transit from a Korean shipyard, and the GLOBAL LINK (lower photo), a new AT&T ship specially designed to lay and repair deep-sea telecommunications cable.

Chapter I

CANAL TRAFFIC

TRAFFIC

Tolls revenue and the most important components of Panama Canal traffic rose substantially in fiscal year 1991, reversing a two-year declining trend. Record tolls revenue was registered during the year and oceangoing transits, Panama Canal net tonnage, and commercial cargo reached the highest levels since 1982, the last year before the Alaskan oil trade was diverted from the Canal to the trans-Panama oil pipeline. This unusually strong performance mostly occurred during the first half of the year and can be primarily attributed to events in the Persian Gulf, which produced a disruption in world trade patterns.

A total of 12,763 oceangoing vessels, an average of 35.0 daily, transited the Canal during fiscal year 1991, representing a 5.9% increase from the 12,052 or 33.0 transits per day registered during 1990. Oceangoing commercial transits totaled 12,572, rising 5.3% from the 11,941 transits registered last year. Transits by vessels owned or operated by the U.S. Government rose 90.1% to 173 from 91 in the prior year, but tolls paid by these vessels only increased 29.6%. Free Colombian and Panamanian Government vessels accounted for 18 transits compared with 20 in 1990.

A turnaround was also experienced in transits by large beam vessels and average ship size. Transits by vessels having beams of 80 feet and over increased 5.0% to 5,825, accounting for 45.6% of total oceangoing transits versus 5,545 and 46.0% in 1990. The increase was primarily the result of a rise in transits by vessels in the 100-ft beam and over category, the largest size ships the Canal can accommodate. After two years of decline, transits by vessels in that category increased 7.4% to a record 2,947 from 2,745 in the prior year, raising this category's share of total oceangoing transits from 22.8% in 1990 to 23.1%. Correspondingly, the average Panama Canal (PC) net tonnage of oceangoing commercial vessels rose 0.3% from 15,217 to 15,260, resuming an upward trend after two years of declines.

The rise in both transit numbers and average ship size generated an increment of 5.7% in total PC net tonnage to 193.1 million tons, the second highest tonnage in the history of the Canal after the 1982 peak of 204 million tons. As a result, tolls revenue reached a record \$374.6 million, up 5.4 percent from the amount collected in 1990.

Total cargo moved by transiting vessels increased 3.7% to 163.2 million long tons, the fourth highest cargo tonnage in Canal history. The increase was primarily concentrated in dry bulk-type commodities.

A two-year summary of the key elements of Canal traffic and tolls revenue is shown in the table below, followed by a more detailed description of cargo movements by trade route.

COMPARATIVE HIGHLIGHTS OF OPERATIONS

	<i>Fiscal Year</i>	
	<i>1991</i>	<i>1990</i>
Oceangoing Transits:		
Commercial	12,572	11,941
U.S. Government.....	173	91
Free	18	20
Total	<u>12,763</u>	<u>12,052</u>
 Daily Average	35.0	33.0
 Small Transits:		
Commercial	1,079	1,017
U.S. Government.....	248	240
Free	18	16
Total	<u>1,345</u>	<u>1,273</u>
 Total Cargo:		
Commercial	162,696,423	157,074,476
U.S. Government.....	516,130	248,442
Free	6	
Total	<u>163,212,553</u>	<u>157,322,924</u>
 Total Panama Canal Net Tons and Reconstructed Displacement Tonnage	193,101,533	182,709,533
 Transit Revenue:		
Commercial Tolls	\$372,398,248	\$353,841,162
U.S. Government Tolls	2,226,489	1,716,795
Tolls Revenue	<u>\$374,624,737</u>	<u>\$355,557,957</u>
 Harbor Pilotage, Tug, Launch, and Other Services	\$ 97,792,243	\$ 78,113,078
Total Transit Revenue	<u>\$472,416,980</u>	<u>\$433,671,035</u>

COMMODITIES AND TRADE ROUTES

Commercial cargo grew in 1991 for the second consecutive year, rising 3.6% from 157.1 million long tons in fiscal year 1990 to 162.7 million long tons. As with other elements of traffic, most of this growth occurred during the first half of the year and is attributed to events in the Persian Gulf. Despite the slowing pace during the second half of the year, 1991 registered all-time highs in a number of commodities, including phosphates, lumber, refrigerated products, chemicals and petrochemicals and containerized cargo. The gains in these and other commodities more than offset the losses registered in a few trades, including petroleum and petroleum products, automobiles, and ores and metals.

Grain, which accounts for the largest volume of cargo utilizing the Canal, continued to improve in 1991, increasing 8.8% from 30.2 million long tons in fiscal year 1990 to 32.9 million long tons. The rise in this commodity group was mainly generated by higher U.S. exports of corn to the Far East via the waterway and a sharp increase in U.S. wheat shipments to northern Africa. Corn shipments increased 7.3% to 15.0 million long tons from 14.0 million long tons in the prior year, sustained almost entirely by increased shipments to Japan, which accounted for nearly 74% of the total corn trade. Wheat tonnage, which had fallen sharply in 1990, was up 17.7% to 8.0 million long tons, primarily as a result of increased shipments from the U.S. West Coast to Africa, which rose 91.3% to 1.7 million long tons. Wheat shipments to mainland China, the largest recipient of the wheat tonnage, dropped for the second consecutive year to 3.8 million long tons from 3.9 million long tons in 1990. The fall in shipments to China during the two years was due to record wheat harvests registered by that country. Soybeans, an important component of the grain category, rose marginally to 6.3 million long tons from 6.2 million long tons and sorghum declined to 1.7 million long tons from 2.0 million long tons.

Petroleum and products resumed the downward trend of the past few years that was temporarily reversed in 1990. Total petroleum tonnage decreased 4.9% to 24.0 million long tons from 25.2 million long tons in 1990 mainly as a result of a decline in crude oil shipments. Crude oil flows dropped 11.1% to 8.2 million long tons, with a sharp decline in Ecuadorian shipments offsetting moderate gains in Venezuelan oil flows. The two main destinations of Ecuadorian crude oil via the Canal, the U. S. East Coast and the West Indies, suffered steep declines of 25.9% and 43.7%, respectively. The lower imports from Ecuador suggest some shift in sourcing by the U.S. and several West Indies countries. Ecuadorian oil production in recent years has remained stable, with no new reserves of crude oil discovered. The small increase in crude emanating from Venezuela was mainly concentrated in shipments to the West Coast of Central America and Chile. Petroleum products, the other component of

this commodity group, also dropped in 1991. This trade totaled 15.8 million long tons, falling by 1.3% from 16.0 million long tons in 1990. The largest decline occurred in the residual fuel oil movement, which was down 17.6% to 4.5 million long tons, reflecting substantial declines in shipments from Peru and Ecuador to the U.S. East Coast.

The nitrate, phosphates and potash commodity group moved up in importance this year with a total tonnage of 14.7 million long tons. This tonnage represented a 6.7% increase over the 13.8 million long tons registered in 1990. Fueling the increase was a 16.1% rise in phosphate shipments, which brought this component of the commodity group to a record 9.5 million long tons. The surge in phosphate shipments was evident in several routes, but was particularly strong in the U.S. East Coast-Far East route, the major route of this trade. This route, which accounted for 64 percent of the total phosphate tonnage, exhibited a 23.7% increase to 6.1 million long tons due to a sharp rise in shipments to China. China received 3.6 million long tons, up from the 2.5 million long tons imported last year. The strong phosphate movement seen this year might be attributable to a certain extent to source substitutions of Jordanian phosphate resulting from the Middle East conflict.

The tonnage of ores and metals fell 8.8% to 11.4 million long tons from 12.5 million long tons in the prior year. The decline was mainly due to the poor performance of aluminum/bauxite, which plunged 42.9% to 1.9 million long tons. Aluminum/bauxite shipments from Oceania to the U.S. East Coast and to the East Coast of South America—the major routes for this trade—displayed the largest declines. As a result, total ores, accounting for 63% of the commodity group's tonnage, declined 12.8% to 7.2 million long tons from the 8.2 million long tons registered the year before. Shipments of metals remained at the 1990 level of 4.2 millions long tons. Scrap metal, the major component of the metals segment, dropped 5.0 percent to 2.1 million long tons despite increased movement on this metal's principal route, U.S. East Coast to the Far East.

The lumber and products commodity group, accounting for 9.5 million long tons, increased less than one percent, but reached a record level. The movement of lumber products—excluding pulpwood—from the U.S. East Coast to the Far East rose sharply from 1.6 million long tons in 1990 to 2.6 million long tons. In recent years, this route has emerged as an important route in this trade, with the main product consisting of woodchips, material destined for papermaking. West Coast Canada, the major source of lumber via the Canal, registered a decline for the second consecutive year to 2.3 million long tons from 3.1 million long tons in 1990.

Coal and coke displayed, as a whole, an improvement of 3.4%, increasing to 8.4 million long tons from the 8.1 million long tons of the previous year. The increase was due to a 59.0% rise in the coke component

of the group. Coke shipments were up from 1.0 million long tons to 1.6 million long tons. Coal shipments, however, deteriorated a further 4.3% to 6.8 million long tons from 7.1 million long tons in 1990 as a result of the continued decline of U.S. coal exports to the Far East via the Canal. Coal to the Far East fell from 4.2 million long tons to 3.4 million long tons, with shipments to Japan and Taiwan totaling 1.5 million long tons and 1.8 million long tons versus prior year levels of 1.6 and 2.5 million long tons, respectively. U.S. coal tonnage from Hampton Roads bypassing the Canal on ships too large to transit the waterway reached another record this year with 7.4 million long tons.

For the fourth consecutive year, the important automobile trade, included in the machinery and equipment commodity group, experienced a decline. The downward trend, however, appears to be tapering off. Automobile tonnage was down 4.8 percent to 1.6 million long tons from 1.7 million long tons in 1990, with shipments from Japan to the U.S. East Coast, the major route, showing a marginal decline of 34 thousand long tons.

Containerized cargo reached a record 21.2 millions long tons, increasing 2.4% from 20.7 million long tons in 1990. Most of the increase was registered on the movement between the U.S. East Coast and the Far East, which accounted for over 53% of the total trade. U.S. exports to the Far East continued to increase reaching 6.5 million long tons compared with 6.1 million long tons in the prior year. U.S. imports from the Far East, however, fell from 4.9 million long tons to 4.8 million long tons reflecting sluggish U.S. demand and the continued competition from the U.S. intermodal system.

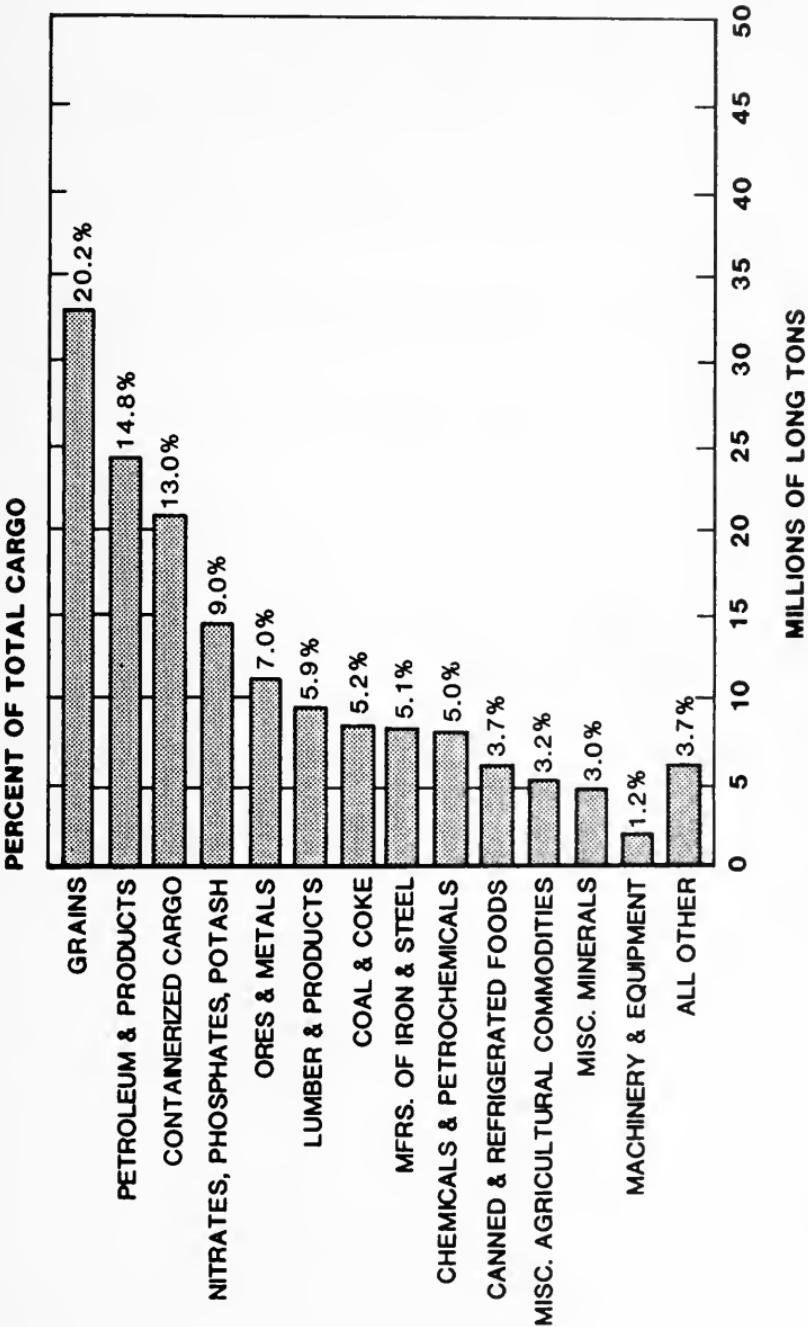
Most other commodity groups experienced gains in fiscal year 1991. Record levels were reached in the movement of refrigerated products, which increased 10.6 percent to 5.9 million long tons from 5.3 million long tons in the prior year, and in chemicals and petroleum chemicals, which rose 19.9 percent to 8.1 million long tons from 6.7 million long tons in 1990. Bananas from Ecuador and refrigerated fruits from Chile were the main trades accounting for the increase in refrigerated products. The marked increase in chemicals and petrochemicals was particularly evident in flows from the U.S. East Coast to the Far East and is attributed, in part, to shifts in source markets resulting from the Middle East conflict. Manufactures of iron and steel also recorded significant gains in 1991, reaching 8.3 million long tons, the highest level since 1978. The improvement was due to increased U.S. exports of manufactures of iron and steel to the Far East. The gains achieved in these commodities were offset to a small degree by declines in other agricultural products.

The dominant trade route in Canal traffic continued to be between the U.S. East Coast and the Far East. The route accounted for 62.8 million long tons, or 38.6% of total commercial cargo, with this tonnage

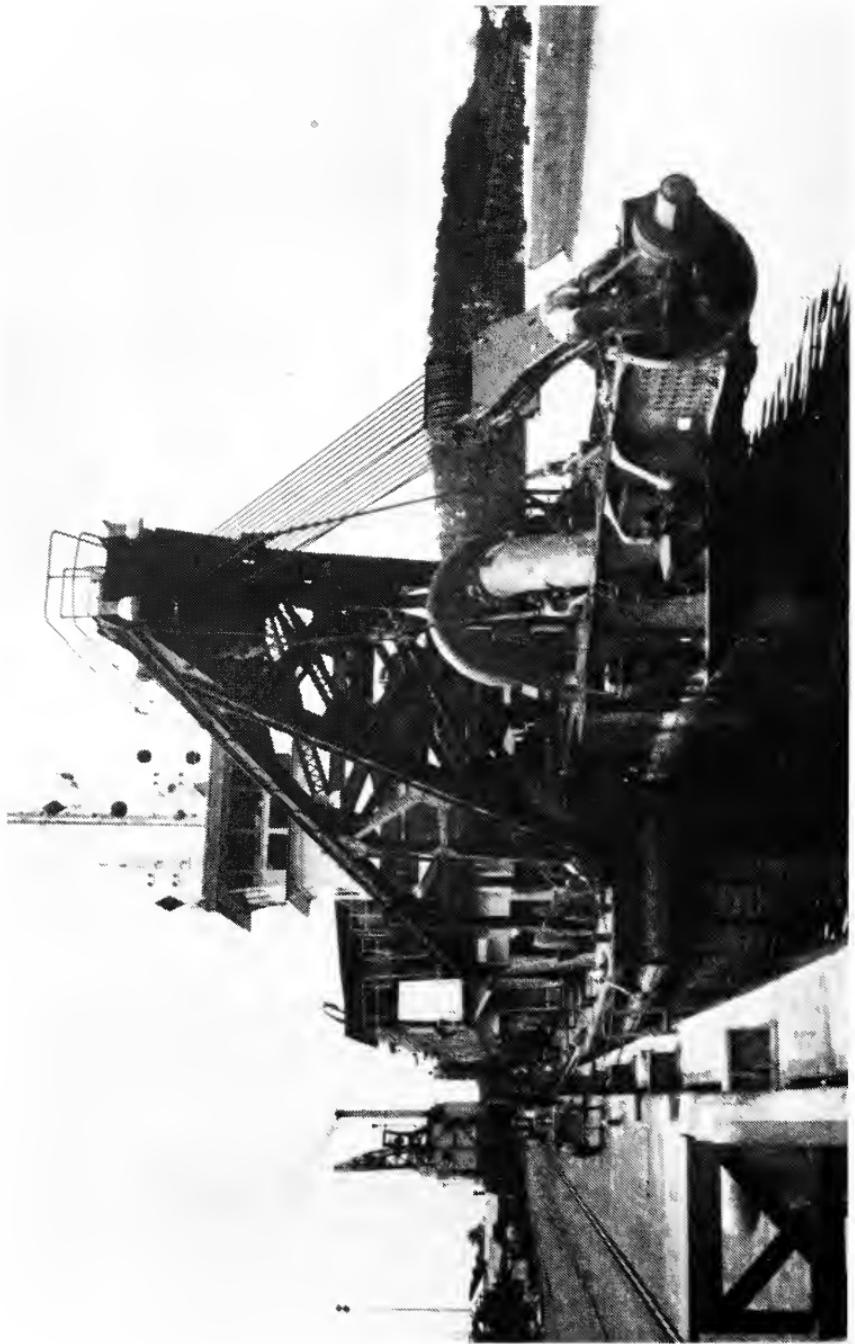
representing an increase of 9.5% from the 57.4 million long tons registered in the prior year.

The following tables show the principal commodity groups moving in oceangoing commercial vessels during 1991 and a comparison of the major trade routes in fiscal years 1991 and 1990.

**PRINCIPAL COMMODITY GROUPS
TRANSITING THE CANAL
OCEANGOING COMMERCIAL CARGO FY 1991**



Trade Route	Fiscal Year				Percent of Increase or (Decrease)
	1991	1990	Panama Canal Net Tons	Long Tons Cargo	
[In thousands of long tons]					
East Coast United States-Asia	67,920	62,822	62,994	57,354	7.8
East Coast United States-West Coast South America	17,140	11,257	19,348	13,486	9.5 (11.4) (16.5)
Round the World	14,127	7,948	13,826	7,680	2.2 3.5
Europe-West Coast South America	13,983	8,348	12,125	8,406	15.3 (0.7)
Europe-West Coast United States/Canada	11,549	15,022	11,777	15,433	(1.9) (2.7)
Europe-Asia	6,672	4,684	5,359	3,602	24.5 30.0
East Coast United States/Canada-Oceania	5,215	6,196	5,249	6,459	(0.6) (4.1)
East Coast United States-West Coast Central America	5,920	5,785	5,052	5,508	17.2 5.0
United States Intercoastal (including Alaska and Hawaii)	4,942	2,031	4,489	2,410	10.1 (15.7)
West Indies-West Coast South America	3,340	3,158	4,094	4,193	(18.4) (24.7)
West Indies-Asia	3,478	2,310	3,863	2,586	(10.0) (10.7)
Europe-West Coast Central America	3,204	1,423	3,052	1,651	5.0 (13.8)
Subtotal	157,490	130,984	151,228	128,768	4.1 -1.7
All other routes	34,297	31,712	30,377	28,305	12.9 12.0
Total	191,787	162,696	181,605	157,073	5.6 3.6



The suction dredge MINDI, visible with its cutter head removed, underwent a \$3.5 million overhaul at the Industrial Division in Mt. Hope. The project involved complete renovation of the dredge's main engines, installation of new equipment and machinery, as well as general maintenance work.

Chapter II

CANAL OPERATIONS

Canal operations are comprised of Transit Operations, Maintenance, and Related Canal Projects. The various functions are divided among a number of operating bureaus within the Canal agency.

TRANSIT OPERATIONS

Daily average transits by oceangoing vessels averaged 35.0 per day during fiscal year 1991. Average time in Canal waters decreased from 24.4 hours in fiscal year 1990 to 22.0 hours in fiscal year 1991.

Unseasonably high levels of traffic were experienced during the first quarter of FY 1991. Canal traffic performance strengthened further following the outbreak of the war in the Middle East and continued through the third quarter of the year.

<i>Fiscal Year</i>	Vessels of 600-foot length and over	Percent of total oceangoing transits	Vessels of 80-foot beam and over	Percent of total oceangoing transits
1991	4,008	31.4	5,825	45.6
1990	3,772	31.3	5,545	46.0
1989	3,913	32.4	5,734	47.5
1988	4,047	32.9	6,027	48.9
1987	4,005	32.5	5,902	48.0
1986	4,131	34.4	5,898	49.1
1985	3,862	33.1	5,514	47.3
1984	3,865	33.9	5,496	48.3
1983	4,157	35.1	5,869	49.5
1982	5,534	39.5	7,226	51.1
1981	4,855	34.7	6,364	45.5
1980	4,598	33.8	6,089	44.7

The number of vessels transiting at more than 36-foot draft increased 8.9%: 1,938 vessels during FY 1991 compared to 1,780 during fiscal year 1990. The maximum allowable draft remained at 39 feet 6 inches during the entire fiscal year.

Total jobs performed by Commission tugs increased from 37,072 in fiscal year 1990 to 40,580 in fiscal year 1991.



From the comfort of a luxurious cruise ship passengers view dry chamber work in the west lane of Gatun Locks during an overhaul. This \$7.4 million project included removal, rehabilitation and reinstallation of four miter gates; maintenance work on rising stem valves and the locomotive tow track system; and repair or replacement of fendering and cathodic protection.

	Fiscal Year	
	1991	1990
Oceangoing transits	12,763	12,052
Tug jobs:		
Balboa	28,332	26,191
Cristobal	12,248	10,881
Tug operating hours	62,535	58,215

MAINTENANCE AND CANAL IMPROVEMENT PROGRAMS

Maintenance and improvements to the Canal continued as scheduled throughout the year. The various divisions and units of the Engineering and Construction Bureau are generally responsible for the overall physical maintenance and improvement of the waterway. The Marine Bureau operates and maintains the locks and related facilities.

Channel Improvements: Channel dredging activities during fiscal year 1991 focused on the Pacific Entrance Channel Widening, where 701,500 cubic yards of material were removed by the dipper dredge RIALTO M. CHRISTENSEN. A total of 7,343,136 cubic yards of material has been dredged to date on the project which began in fiscal year 1988 and is scheduled for completion in 1992.

In August 1991, a small landslide at Culebra Reach deposited 15,075 cubic yards of rock into the Canal. Vessel traffic continued; however, transit precautions were exercised over a period of ten days, until the debris was removed. Statistics on the total volume of material dredged for the year appear in Table 14 of this report.

Three new range towers composing the new Centerline Range were built as part of the Pacific Entrance Channel Widening Project. The new aids to navigation incorporate state-of-the-art technology and are outfitted with marks for day and night use.

The widening of the Pacific approach channel created the need for added protection to Pier No. 6 of the Thatcher Ferry Bridge, located off the edge of the east bank of the channel. Maintenance Division placed approximately 40,000 cubic yards of armor rock around the pier as protection against accidental ship collision.

At the July 1991 meeting of the Commission's Board of Directors, approval was granted to begin widening and straightening the narrow, eight-mile Gaillard Cut area of the Canal. This internally funded multi-phase excavation effort is scheduled to begin in FY 1992 and will be performed over a number of years utilizing in-house resources to accomplish wet excavation and commercial contractors to perform dry land work. Widening of the channel will increase its minimum width from 500 feet to 630 feet in the straight sections and maximum width to 730 feet at the curves. Completion of this major improvement will allow two way passage of virtually all vessels throughout the waterway.

Locks: A miter gate overhaul was conducted at Gatun Locks during

FY 1991. Gates Nos. 7, 8, 15 and 16 were removed for rehabilitation and were replaced by gates 19, 20, 31 and 32 which had been removed and rehabilitated in 1990. During the dry chamber phases of the overhaul, additional maintenance work on rising stem valves, conductor slot, rubber fendering and cathodic protection was also performed. Gatun and Pedro Miguel Locks also had scheduled lane outages for limited periods during the year in order to allow for the conversion of rising stem valves and to inspect underwater equipment in the centerwall.

Two locomotive turntables were purchased. One is being installed at Gatun Locks and the other is tentatively scheduled for installation at Pedro Miguel in FY 1993 upon completion of the final design. The new turntables permit earlier attachment of towing locomotive cables to vessels for improved handling during lockages. Rehabilitation of 1,447 feet of landslide rail, 1,000 feet of conductor slot and 48 feet of rack track for the towing locomotive track system was also accomplished during the year.

Installation of the new sandwich type forebay fendering was completed at Pedro Miguel and Gatun Locks and work is underway at Miraflores Locks. Additionally, approximately 1,200 feet of experimental approach wall fendering was installed at Pedro Miguel Locks Southeast approach wall for testing and evaluation.

The first phase of a program to install an improved fire protection system at all three locks has been completed at Miraflores Locks North and South approaches. Installation of similar systems is scheduled for Pedro Miguel Locks in FY 1993, followed by Gatun Locks in FY 1995/FY 1996.

Two newly fabricated support structures and accompanying refurbished roadways were installed at the Gatun Locks Vehicular Bridge.

Dams and Spillways: At Madden Dam two of the four drum gates and one of the two needle valve penstocks were repainted. General repairs and emplacement of experimental bottom seals to three Miraflores Spillway gates was accomplished.

Communications: The third major stage in the Commission's ongoing telecommunications improvement project was completed at a cost of about \$2 million. Included were the installation of a new digital electronic switching system in Gatun and a supporting digital trans-Isthmian microwave system.

Floating Equipment Maintenance: A scheduled major overhaul costing approximately \$3.7 million was performed on the dredge MINDI. The suction system of the dredge was modified and a new all around fendering system was installed. On the dredge CHRISTENSEN, structural repairs and modifications were made to its boom, and a spare dipper stick to the dredge was manufactured.

Caissons Nos. 1 and 2 were inspected by surveyors of the American Bureau of Shipping to determine their structural, electrical and mechanical

condition. The replacement of Caisson No. 1 is under review while Caisson No. 2 is undergoing major rehabilitation.

Scheduled overhauls were performed on the tugs WALKER and GUIA. Three other tugs received emergency repairs and structural repairs were made to one tug. Barges 102, 214, and 407, Diving Barge DOLPHIN, and ten launches received overhauls as scheduled.

Acquisitions and contracts: A new dredge tender, the CULEBRA, which cost approximately \$1.3 million, arrived at Gamboa on September 27, 1991. Contracts were awarded for the construction of a new anchor barge, three twin screw pilot/linehandler launches, and for modernization of the linehandling and launch facility at Gatun Lighthouse landing. During the year, the Engineering and Construction Bureau awarded 131 contracts totaling \$13.6 million for construction related projects.



As part of the program to enhance the Canal's emergency response capabilities at each set of locks, modern fire stations have been built and appropriate mobile equipment assigned at each locks complex. These improvements are also designed to augment the marine foam-type fire protection system being installed at all locks.

Chapter III

SUPPORTING OPERATIONS

Supporting units of the Panama Canal Commission provided essential support services for the operation and maintenance of the waterway and the Agency's facilities, as well as to other U.S. agencies on the Isthmus and to employees and their dependents. These operations included logistical services community services, sanitation and grounds management, transportation services, public utilities, fire protection, security, health and safety and other employee services.

LOGISTICAL SERVICES

The Logistical Support Division provided centralized procurement, inventory management, warehousing, distribution, contract administration and supply and property disposal support to Canal operations. A total of \$81.7 million in goods and services were procured in fiscal year 1991, including \$22.9 million from sources in Panama. This includes \$5.6 million for light diesel fuel oil purchased from Texaco Antilles, Ltd. and Esso Standard Oil, S.A. Bunker "C" oil purchases for thermoelectric power generation totalled \$10.3 million (two purchases from U.S. firms and one from Refineria Panama). Major contracting obligations included \$2,614,281 for catastrophic insurance, \$1,707,708 for a crane barge, \$1,307,151 for pilot and line handler launches, \$1,271,080 for fire trucks, \$769,961 for rewinding and uprating of Gatun power plant generators, \$728,614 for aluminum sulphate (a water treatment chemical), \$726,960 for rising stem valve parts, \$406,430 for replacement of a steam turbine unit economizer, \$406,023 for air compressors, \$337,000 for ball joint assemblies and \$330,750 for a turbine runner.

Approximately \$19.3 million in inventory items were issued for Commission use, and \$20.4 million was obligated for new inventory purchases during the year. A total inventory of 38,659 line items with an average inventory value of \$29.7 million was on hand at year-end.

Activities of the Excess Disposal Unit included no-cost transfers to other U.S. Government agencies of excess equipment having an original

acquisition value of \$2.4 million. Surplus property sold to the Government of Panama at current fair market value amounted to approximately \$13,618. Sales to others totaled \$363,792.11.

The New Orleans Branch in Louisiana expedited urgent purchases and coordinated all Commission cargo shipments from the United States to Panama. Under the coverage of the Military Sealift Command's contract, 19,238 measurement tons of containerized and breakbulk cargo were shipped from Louisiana ports to the Port of Las Minas, Republic of Panama.

COMMUNITY SERVICES

During fiscal year 1991, the Community Services Division managed Commission housing, Commission-owned buildings, the Furniture Pool, the Technical Resources Center and the Employee Fitness Program.

The housing portion of the operation allocated its resources to managing, maintaining, repairing, and ensuring the safety and security of the quarters inventory. Sixty-nine Department of Defense Schools employees continued occupying Commission housing units under an inter-service agreement. Under the multi-year housing management plan, the division identified 141 housing units in the town sites of Balboa, Diablo, Gamboa and Margarita for release to the Government of Panama by the end of calendar year 1991. To date, the Commission has released a total of 55 housing units of the 141 identified. The housing inventory decreased from 1,545 to 1,490. This represents 34% of the inventory of approximately 4,300 units owned by the Panama Canal Company prior to entry into force of the Panama Canal Treaty in 1979. Conversely, a total of 66% of those units have transferred to the Government of Panama in 12 years since Treaty implementation.

The buildings management activity maintained and operated Commission buildings and structures (not specifically assigned to other Commission units) and a centralized custodial service. As an ongoing project, this unit continued to modify facilities to comply with OSHA standards for handicapped personnel and increased physical security of buildings. No buildings were transferred to the Government of Panama during the year. The branch began operating the Commission's furniture pool effective January 1, 1991. In addition to its own pool, it also coordinates the procurement of new Commission office furniture and related furniture requirements such as inventory, transportation, storage, maintenance and repair.

The Technical Resources Center provided mission-support information and research to all units of the Commission and other U.S. agencies and maintained a collection of library and tridimensional materials relating

to the history and operation of the Panama Canal. This unit supported the professional development of the pilot understudies, apprentices, clerical trainees and other employees through workshops and publications. Online public access computers (OPAC) became operational for both staff and patrons. OPAC allows users to search the technical collection online and printout bibliographies.

The Employee Fitness Branch administered a variety of duty-related as well as off-duty fitness programs and recreational facilities. Training was provided to Commission units in rescue, water safety, advanced life saving and survival floating. The branch continues to be responsible for certifying swimming proficiency of job applicants and employees.

SANITATION AND GROUNDS MANAGEMENT

The sanitation activity provides environmental health support to Commission employees and Panama Canal operating units. This responsibility extends to protecting the work force from tropical diseases transmitted by insect and arthropod vectors. Mosquito control measures primarily involved hand labor maintenance of surface drainage systems to prevent breeding in ponded water. The Sanitation Branch, in coordination with the Entomology Laboratory Unit, operated an extensive mosquito surveillance and monitoring network in the Canal area. In FY 1991, *Aedes aegypti* breeding locations discovered and controlled increased to 89 from 54 in FY 1990.

Africanized honey bees continue to infest a wide area of the Republic Panama. The Sanitation Branch continued to operate an immediate response system for the control of Africanized bees reported by Commission units and housing occupants. Several swarms were controlled aboard transiting vessels. Bee control workload increased by 21 percent, from 167 colonies destroyed in FY 1990 to 202 colonies destroyed in FY 1991.

Refuse disposal services at the Commission's Atlantic and Pacific sanitary landfills continued to be provided for Canal area solid wastes, including refuse from U.S. military installations and Government contractors. In FY 1991, net refuse disposal workload decreased by 7.4% compared to FY 1990. Military refuse tonnage dropped by 15%.

Grounds Branch agronomists provided technical oversight for the long-term Gaillard Cut reforestation project which is managed by the Engineering Division. Contract planting of 64,000 tree seedlings of the fast-growing tree species, *Acacia* and *Gmelina*, proved effective in reducing both soil erosion and unwanted types of vegetation in potential landslide areas of Gaillard Cut. Grounds Branch and Fire Division crews accomplished grass fire damage control at the tree plantations.

MOTOR TRANSPORTATION SERVICES

The Motor Transportation Division operated and maintained a consolidated motor pool of 955 vehicles designed to meet the vehicular transportation requirements of the Commission. The vehicle fleet in Fiscal Year 1991 included 639 trucks of various types, 211 passenger-carrying vehicles, 54 special purpose vehicles and 51 special equipment vehicles. Fleet mileage increased from 7,466,000 in FY 1990 to 8,032,112 in FY 1991. Fully equipped shops, including a tire retreading facility, light and heavy duty repair shops, and specialized transmission, diesel and machine shops provided facilities for overhauls, preventive maintenance and repairs to the Motor Transportation Division fleet and equipment of other Commission units. The vehicle inspection facilities located within the Motor Transportation Division were used again in FY 1991 for inspection of privately owned vehicles belonging to Department of Defense and Commission personnel. This service was provided under an AAFES contract, after being suspended in FY 1990 due to the U.S. military operation Just Cause. These facilities were also used for the inspection of all Commission vehicles. The transportation section is staffed with a total of 156 motor vehicle operators in both districts, and manages a motor pool of 381 vehicles, consisting of 250 general pool, 84 replacement and 47 special purpose vehicles and equipment. This section performed an average of 4,522 monthly transportation trips during FY 1991 for services ranging from transisthmian pilot trips to heavy equipment operation.

PUBLIC UTILITIES AND ENERGY

Panama Canal Commission facilities include electric power generation and distribution systems, communication systems, water purification and distribution systems, and a central chilled water air conditioning system for certain public buildings.

Total Canal area energy demand during fiscal year 1991 was 533 gigawatt hours, a 0.2 percent increase from the 532 gigawatts used last year. The peak hourly demand of 85.1 megawatts, reached on June 12, 1991, showed a slight increase from the 84.6 megawatts peak reached in fiscal year 1990. Electrical power consumed for Commission operations was 67.3 gigawatts hours, 4.7 percent above the previous year. Gasoline and petroleum distillate fuel usage by the Commission during FY 1991 (excluding fuel for power generation), was 4.2 million gallons, 11.4 percent lower than in FY 1990. Combined fuel and electrical energy consumption by the Commission, calculated in btu's, also showed an overall decrease, 7.4 percent, in comparison with FY 1990.

The water treatment and distribution systems operated by the Commission provide potable water for the Canal area and areas of the Republic of Panama. The Pacific side system serves the Canal area,

portions of Panama City, and suburban areas. During fiscal year 1991, the systems on each side of the Isthmus supplied 3.42 billion cubic feet of potable water to consumers, a slight increase of about 0.88 percent from the previous year. Water supplied by the Panama Canal Commission to Panama City and Colon metropolitan areas amounted to approximately 57.1 million gallons per day.

FIRE PROTECTION

The Panama Canal Commission Fire Division and the Bomberos of the Republic of Panama, in accordance with the Panama Canal Treaty of 1977, are responsible for providing fire protection, fire fighting and emergency rescue services in Canal operating areas, defense sites, and military areas of coordination, including shipboard fire fighting on all vessels in Canal area waters.

Commission responses for FY 1991 totaled 6,519 compared to 5,934 for FY 1990. The marine stand-by program for hazardous ships at the locks accounted for nearly 38 percent of the responses this year. This service is provided by Fire Division personnel with foam apparatuses on stand-by at the locks as a marine safety measure for those vessels designated by the Marine Bureau as carrying dangerous cargos. The critical period is considered to be when a vessel is entering the locks.

There were 1,707 responses for ambulance service compared to 1,653 in FY 1990. This division also responded to a total of 39 bomb threats during FY 1991 as compared to 91 in FY 1990. Excluding ship fires, there were 445 fires this year, a slight reduction over FY 1990. Most incidents were grass and brush fires, which frequently occurred during the vulnerable dry season. Additional fire statistics appear in Table 16 of this report.

In accordance with the Panama Canal Treaty of 1977, formal joint training was conducted on 6 occasions with the Bomberos of the Republic of Panama as compared to 9 for last year. This figure is in addition to regularly occurring joint responses to fires and other emergencies.

CANAL PROTECTION

During fiscal year 1991, the Canal Protection Division provided security for equipment, installations and facilities devoted to the operation, maintenance and management of the Panama Canal.

For a brief period, the division assisted the Panama National Police in the patrolling of two Commission town sites due to a shortage of police units. The police and Canal Protection personnel continue to jointly patrol remote land and water areas of the Canal.

Considerable resources were expended safeguarding navigational aids and related equipment on the west bank of the Canal. Security hardware improvements were made at critical installations and support facilities. Final designs and specifications for a centralized security control system were completed.

HEALTH AND SAFETY

The Occupational Health and Safety Divisions are components of the Office of Personnel Administration. The Personnel Director is the Designated Agency Safety and Health Official. The Panama Canal Commission is committed to ensuring a safe and healthful workplace for its employees, an objective which enjoys support from all levels of Commission management.

During fiscal year 1991, the Commission experienced 375 performance-of-duty accidents/illnesses for which employees required medical attention beyond first aid, as compared to 374 in fiscal year 1990. The incident rate for fiscal year 1991 was 4.5 per 100 employees, the same as for fiscal year 1990. There were no fatalities in fiscal year 1991.

Workplace health and safety programs were improved and expanded during fiscal year 1991. Formal workplace inspections and evaluations were ongoing; compliance with all aspects of the Hazard Communication Policy was stressed; the agency's Confined Space Policy and implementing procedures were revised and fine tuned; and a Respiratory Protection Policy was issued. As the cholera epidemic threatened to reach Panama, special training and media information were provided to employees. The joint labor/management Safety and Health Committee met regularly to maintain its valuable role in the agency's overall health and safety program.

The agency Drug-Free Workplace Plan continued in effect, with incident, accident, reasonable suspicion, random and applicant drug testing; counseling and rehabilitation through the agency's Employee Assistance Program; and strict penalties for those who refused the services offered or who did not refrain from drug use. The Employee Assistance Program provided not only rehabilitative services related to substance abuse, but also included stress management and other health counseling. Employee and public awareness of the dangers and consequences of drug abuse, together with the sources of assistance available to stop drug use, was increased via a series of agency newspaper articles, classes and inter-agency campaigns.

Chapter IV

ADMINISTRATION AND STAFF

PERSONNEL FORCE EMPLOYED AND PAYROLL

At the end of fiscal year 1991, the total Isthmian force of the Commission was 8,740 compared to 8,332 employees in fiscal year 1990. Of the total Isthmian force, 7,206 were permanent and 1,534 temporary. Of the permanent Isthmian work force, 6,281 (87.2%) were Panamanians, 859 (11.9%) were U.S. citizens, and 66 (0.9%) were third country nationals. Eighteen persons, all U.S. citizens, were employed by the Commission in New Orleans and Washington, DC.

The total Commission payroll was \$229.5 million in fiscal year 1991 compared to \$204.8 million in fiscal year 1990. Of the total Commission fiscal year 1991 payroll, \$173.5 million was paid to non-U.S. citizen employees and \$56.0 million to U.S. citizen employees.

EQUAL OPPORTUNITY PROGRAM

The Agency's FY 1990 Affirmative Employment Program Report for Minorities and Women (EEO-MD-714) and the Report for the Employment of People with Disabilities (EEO-MD-713) for the U.S. citizen work force were submitted to the Equal Employment Opportunity Commission during fiscal year 1991, as required.

Formal EEO complaints reflected a 62.5% decrease from the previous year. Of the complaints being processed, 21.7% were resolved through settlement agreements. Several workshops on the prevention of sexual harassment in the workplace were conducted for supervisors and employees. Black History Month, National Hispanic Heritage Month, and National Disability Employment Awareness Month were commemorated. Six hundred and seven employees attended Women's Week training during March. Training in the EEO complaint process was provided to 40 supervisors and employees. The Panamanian Preference Program continued to reflect increased participation of R.P. nationals at all levels.

The composition of the work force by sex, minority group and citizenship at the end of fiscal year 1991 is reflected below:

		Sex	
Male			87.0%
Female			13.0%
Minority Group			
<i>Hispanics</i>	<i>Blacks</i>	<i>Whites</i>	<i>Orientals</i>
66.8%	21.6%	9.5%	1.6%
			<i>Indians</i>
			0.5%

PUBLIC AFFAIRS

The Office of Public Affairs is responsible for handling all public affairs, orientation services and informational activities of the Panama Canal Commission, both locally and internationally. In this connection, through the Commission publication The Panama Canal Spillway, local and international press releases, video tapes, films and exhibits, matters of interest were disseminated to the work force, the public at large and the shipping industry in particular. A daily digest of information of interest to Commission managers was also compiled from local newspapers. The Graphic Branch assists the public affairs effort by providing a broad range of photographic and audiovisual support services, including training videos and slide briefings for use throughout the Commission. The Orientation Service, located at Miraflores Locks, provides information to and facilitates the visits of tourists, visitors, officials, celebrities and media representatives to the Canal. This year, 338,828 visitors were welcomed to Miraflores and Gatun locks and 942 VIP tours were conducted.

In addition to fundamental informational services, the Office of Public Affairs designed, produced and operated Commission exhibits for EXPOSHIP LONDON 91, held in London, England; EXPOCOMER, a business exposition held annually in Panama city; the David Fair, held annually in the Chiriquí province of Panama; and other local activities and functions. Audiovisual support was also provided for various briefings given by the Administrator and other senior Commission officials throughout the year.

OMBUDSMAN

The Office of the Ombudsman was established pursuant to implementing legislation of the Panama Canal Treaty of 1977. The office responds to employees' and dependents' complaints, grievances, and requests for information; and channels many issues to the proper authorities for processing under existing statutes or administrative regulations. Generally, the Office of the Ombudsman investigates administrative problems,

inefficiencies, omissions and policy conflicts existing within the various offices of the Panama Canal Commission, and between the Commission and other U.S. Government agencies on the Isthmus of Panama resulting from the treaty. The office provides the widest latitude possible for handling problems affecting employee morale and the quality of life.

The office maintains close contact with officers of the three Residents Advisory Committees as a means to assure close communication between the Commission and these community groups on matters of concern to residents in Commission housing areas.

INDUSTRIAL RELATIONS

Labor-management relations throughout the fiscal year routinely encompassed activities and issues characteristic to the federal sector.

In November 1990, the Federal Labor Relations Authority (FLRA) issued a decision upholding an arbitrator's interpretation of the pilots collective bargaining agreement which in effect bars the Commission from placing pilots on AWOL for not reporting to duty on time as a result of oversleeping. The arbitrator determined these pilots must be placed on leave even though they may be subject to discipline. When this case was filed with the FLRA, the well-established rule was that arbitration awards would be set aside if contract provisions were interpreted to infringe on a management right. The FLRA modified the rule during the pendency of this case. It now holds that an award will be overturned only if such an interpretation totally abrogates a management right.

In 1990 it was reported that, absent settlement, an unfair labor practice (ULP) complaint would be issued against the Commission for unilaterally terminating the option of non-preference eligible employees to appeal adverse actions through the agency's administrative procedure. In February 1991, the FLRA's Administrative Law Judge (ALJ) dismissed the ULP and determined that the Commission had properly terminated the procedure for the employees in question. However, the Commission filed an exception on other grounds. The case is presently pending before the FLRA. The union has also filed exceptions to the ALJ's decision.

On April 7, the firefighter collective bargaining agreement was again extended for a one-year period pursuant to an automatic renewal provision.

GENERAL COUNSEL

Upon the December 23, 1985 enactment of Public Law 99-209, the Commission was authorized to settle all vessel-accident claims without regard to amount or situs of the incident which resulted in the injury or damage. The 30 out-of-locks vessel-accident claims which were pending at that time were adjudicated by the end of FY 1990. Additionally, final disposition of the pending admiralty suits (two filed before passage of the Amendments Act and nine thereafter) was made prior to close of FY 1990.

One was dismissed by the court and 10 were settled. No new suits in admiralty were filed during FY 1991.

As in previous years, the principal area of settlement emanated from marine accidents. Twenty claims for vessel damage in the amount of \$3,372,243 were settled for the total sum of \$1,436,109. Settlement of miscellaneous general claims for FY 1991 totaled \$67,975, a decrease of 34% from FY 1990.

The decision of the Corps of Engineers Board of Contract Appeals concerning an appeal arising from the construction of the Paraiso Reach Tie-Up Station was received in early September 1991. Legal briefs and proposed findings of fact were submitted to the Board by legal counsel in December 1990 and February 1991, respectively. The defaulting contractor, performance-bond surety, and the principal completing subcontractor had brought a claim against the Commission in 1986 seeking a judgment of \$6.1 million, plus interest. Commission exposure in this case was in excess of \$9.1 million. The three-judge panel ruled unanimously, however, that the claims of the contractor and the surety were without merit and were, therefore, denied. The Board also denied the largest of the subcontractor's two claims, while allowing a judgment on the smaller claim in the amount of \$478,726. A total amount of \$695,873, which included interest, was subsequently paid by the Commission to the subcontractor. The appellants have submitted to the Board a motion to reconsider and reverse its decision. If that motion is denied, the appellants will have 120 days to appeal the ruling to the Court of Appeals for the Federal Circuit.

Nine new contract appeals were filed against the Commission during the fiscal year. This is up from five filed in the previous year, and reflects the steady increase in the ability and willingness of local contractors to utilize the appeal process available under the Contract Disputes Act. Seven of the new appeals were brought by Panamanian contractors, and each was filed with the Corps of Engineers Board of Contract Appeals.

Chapter V

FINANCIAL REPORT

FINANCIAL STATEMENTS FOR THE FISCAL YEAR ENDED SEPTEMBER 30, 1991

The financial statements of the Panama Canal Commission, appearing as Tables 1 through 4, with accompanying notes, present the financial position of the Commission at September 30, 1991 and the result of its operations for the fiscal year then ended.

The accounts and statements of the Panama Canal Commission have been examined by the Office of Inspector General of the Commission and by the United States General Accounting Office. Detailed audit reports of the United States General Accounting Office are directed to the Congress and are presented as Congressional documents.

The Commission is a federal executive agency that was established on October 1, 1979, to carry out the responsibilities of the United States with respect to the Panama Canal Treaty of 1977. The Commission will operate the Canal until the Treaty terminates on December 31, 1999, when the Republic of Panama will assume full responsibility for the Canal.

SCHEDULED TERMINATION OF THE COMMISSION

As provided by the Panama Canal Treaty of 1977, the Panama Canal Commission will terminate on December 31, 1999, when the Republic of Panama will assume full responsibility for the management, operation, and maintenance of the Panama Canal. The treaty provides that the Canal is to be turned over in operating condition and free of liens and debts, except as the two Parties may otherwise agree.

To do this, the Commission needs to recover all of its costs from its revenues. The Commission operates as a rate-regulated utility, with approximately 75 percent of revenue obtained from tolls and the remaining 25 percent from nontoll revenue, such as navigation fees and electric power sales. The President of the United States serves as the rate regulator for tolls, which are established at a level to recover the costs of operating and maintaining the Canal.

RESULTS OF OPERATIONS

The Commission ended fiscal year 1991 with net operating revenues of \$3.6 million, compared to net operating revenues of \$7.0 million for fiscal year 1990. Net operating revenue for 1991 eliminated carry forward losses from prior years of \$2.7 million, leaving the remaining \$875,000 to be paid to the Republic of Panama. The Panama Canal Act of 1979 requires that tolls be prescribed at rates calculated to recover such prior year losses.

From 1987 through 1991, toll and nontoll revenues increased an average of 4.0 percent annually. Fiscal year 1991 total operating revenues increased to \$506 million, up 6.7 percent over fiscal year 1990. This was due to a slight increase of ships transiting the Canal caused by the Persian Gulf War and 6 percent more net tonnage. Nontoll revenue, which consists primarily of navigation fees and electric power sales, increased to \$138 million during fiscal year 1991, up 15.6 percent from 1990. This increase was due to the recognition of \$13 million of advance booking fees in 1991, which were accounted for as advances for capital in 1990.

From 1987 through 1991, total operating expenses increased an average of 3.8 percent annually. Fiscal year 1991 total operating expenses increased to \$503 million, up 7.5 percent over fiscal year 1990. Most operating costs remained fairly constant between 1990 and 1991. Some of the highlights were:

--Tonnage payments to the Republic of Panama increased 15.6 percent in 1991 due to an increase (from 0.32 cents to 0.35 cents) in the amount paid to Panama for each ton transiting the Canal and to higher Canal traffic.

--Cost of maintenance of channels, dams, and spillways increased 20.8 percent over 1990, due to dredging of Canal waterways and overhauls of equipment.

--Supply and transportation services increased 20.3 percent in 1991 due to an increase of \$4.7 million in the provision for obsolete and excess inventory.

--General and administrative costs in 1991 remained constant due to the offset of salary and other costs by an increase in the credit for the amortization of capital advance and lower costs of employee repatriation.

--Interest expense, decreased by 23.6 percent in 1991 due to lower rates and lower U.S. interest-bearing investment.

ASSETS, LIABILITIES, AND CAPITAL

Between September 30, 1990, and September 30, 1991, total assets of the Commission declined by 2.3 percent to \$856 million, total liabilities declined by 4.9 percent to \$383 million, and U.S. Government capital remained at approximately \$473 million. The most significant changes in individual account balances for this period were:

--Property, plant, and equipment (excluding depreciation) increased by

\$25 million in 1991 to \$1,023 million. This increase was due primarily to capital expenditures, such as \$4.8 million for replacement of lock locomotive turntables, \$4.6 million of motor vehicle replacements, \$3.4 million of improvements to electric power and communication systems, \$1.8 million for construction of a grit blasting and painting facility, and \$1.3 million for replacement of launches and launch engines.

--Current assets increased in 1991 by \$5 million to \$173 million, due primarily to higher cash balances generated by operations, offset by a \$6.1 million decrease in inventory, \$5.7 of which was caused by an increase in the allowance for obsolete and excess items.

--Deferred charges declined by \$30 million in 1991 to \$186 million, primarily due to amortization of deferred charges for retirement and workers' compensation benefits.

--Current liabilities increased in 1991 by \$4 million to \$144 million, primarily due to higher year end fuel oil purchases and higher operating costs.

--Long-term liabilities decreased \$27 million in 1991 to \$181 million, primarily due to the amortization of employee benefits.

Table 1.—Statement of Financial Position
September 30, 1991 and 1990
(Dollars in thousands)

Assets	1991	1990
PROPERTY, PLANT AND EQUIPMENT:		
At cost	\$1,022,626	\$997,155
Less accumulated depreciation and valuation allowances	<u>525,303</u>	<u>505,029</u>
	<u>497,323</u>	<u>492,126</u>
CURRENT ASSETS:		
Cash	127,135	114,481
Accounts receivable	11,687	13,331
Inventories, less allowance for obsolete and excess inventory of \$6,467 and \$800 respectively	33,900	40,000
Other	<u>205</u>	<u>172</u>
	<u>172,927</u>	<u>167,984</u>
DEFERRED CHARGES:		
Early retirement benefits	121,152	136,296
Compensation benefits for work injuries	59,530	71,685
Retirement benefits to certain former employees	5,178	5,587
Unrecovered costs due from subsequent revenues	<u>.....</u>	<u>2,713</u>
	<u>185,860</u>	<u>216,281</u>
TOTAL ASSETS	<u>\$856,110</u>	<u>\$876,391</u>

The accompanying notes are an integral part of this statement.

Table 1.—Statement of Financial Position
September 30, 1991 and 1990
(Dollars in thousands)

Capital and Liabilities	1991	1990
CAPITAL:		
Investment of the United States Government:		
Interest-bearing (9.949% and 10.135%, respectively).....	\$120,557	\$133,176
Non-interest-bearing	<u>352,622</u>	<u>340,663</u>
	<u>473,179</u>	<u>473,839</u>
CURRENT LIABILITIES:		
Accounts payable:		
Commercial vendors and other.....	17,706	12,932
U.S. Government agencies	1,905	3,927
Republic of Panama.....	<u>8,827</u>	<u>8,388</u>
	<u>28,438</u>	<u>25,247</u>
Accrued liabilities:		
Employees' leave	50,590	47,713
Salaries and wages	4,826	9,544
Early retirement benefits	15,144	15,144
Compensation benefits for work injuries.....	8,460	8,018
Retirement benefits to certain former employees	692	684
Employees' repatriation	785	833
Marine accident claims	21,034	19,531
Net operating revenue payable to Republic of Panama	875	.....
Other	<u>1,969</u>	<u>2,536</u>
	<u>104,375</u>	<u>104,003</u>
Other current liabilities:		
Advances for capital-unexpended	9,079	10,473
Other	<u>2,100</u>	<u>463</u>
	<u>11,179</u>	<u>10,936</u>
	<u>143,992</u>	<u>140,186</u>
DEFERRED CREDIT:		
Advances for capital being amortized	<u>57,760</u>	<u>54,249</u>
LONG-TERM LIABILITIES AND RESERVES:		
Early retirement benefits	106,008	121,152
Compensation benefits for work injuries.....	51,070	63,667
Retirement benefits to certain former employees	4,486	4,903
Employees' repatriation	6,121	7,340
Lock overhauls	1,957	1,892
Marine accidents and casualty losses	8,000	6,994
Floating equipment overhauls	<u>3,537</u>	<u>2,169</u>
	<u>181,179</u>	<u>208,117</u>
TOTAL CAPITAL AND LIABILITIES.....	<u>\$856,110</u>	<u>\$876,391</u>

The accompanying notes are an integral part of this statement.

Table 2.—Statement of Operations
Fiscal Years Ended September 30, 1991 and 1990
(Dollars in thousands)

OPERATING REVENUES:	<i>1991</i>	<i>1990</i>
Tolls revenue	\$374,625	\$355,558
Advances for capital	<u>(5,929)</u>	.....
Net tolls revenue	368,696	355,558
Other revenues	<u>137,725</u>	<u>119,115</u>
Total operating revenues	<u>506,421</u>	<u>474,673</u>
OPERATING EXPENSES:		
Payments to Republic of Panama:		
Public services	10,000	10,000
Fixed annuity	10,000	10,000
Tonnage	<u>67,593</u>	<u>58,457</u>
	87,593	78,457
Maintenance of channels, dams and spillways	35,628	29,482
Navigation service and control	86,221	78,912
Locks operation	53,778	48,294
General repair, engineering and maintenance services	25,775	23,074
Supply and transportation services	23,851	19,829
Utilities	31,772	29,854
Administrative and general	78,576	77,697
Depreciation	22,685	23,393
Fire and facility protection	13,351	12,699
Interest on interest-bearing investment	11,544	15,113
Other	<u>32,059</u>	<u>30,853</u>
Total operating expenses	<u>502,833</u>	<u>467,657</u>
Net Operating Revenue	3,588	7,016
Recovery of prior year losses	<u>(2,713)</u>	<u>(7,016)</u>
NET OPERATING REVENUE PAYABLE TO REPUBLIC OF PANAMA	<u>\$875</u>	<u>\$.....</u>

The accompanying notes are an integral part of this statement.

**Table 3—Statement of Changes in the Investment of the United States Government
Fiscal Year Ended September 30, 1990 and 1991
(Dollars in thousands)**

	<i>1990 Invested Capital</i>		
	<i>Interest-Bearing</i>	<i>Non-Interest-Bearing</i>	<i>Total</i>
INVESTMENT AT OCTOBER 1, 1989.....	<u>\$147,893</u>	<u>\$325,398</u>	<u>\$473,291</u>

CHANGES IN INVESTMENT:

Expenditures from Panama Canal Revolving Fund	469,595	(469,595)	.....
Tolls and other receipts deposited into Panama Canal Revolving Fund.....	(484,188)	484,188	.....
Net change in undeposited receipts.....	.....	672	672
Property transferred to other U.S. Government agencies	(124)	(124)
	<u>(14,717)</u>	<u>15,265</u>	<u>548</u>

INVESTMENT AT SEPTEMBER 30, 1990.....	<u>\$133,176</u>	<u>\$340,663</u>	<u>\$473,839</u>
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	<i>1991 Invested Capital</i>		
	<i>Interest-Bearing</i>	<i>Non-Interest-Bearing</i>	<i>Total</i>
INVESTMENT AT OCTOBER 1, 1990.....	<u>\$133,176</u>	<u>\$340,663</u>	<u>\$473,839</u>

CHANGES IN INVESTMENT:

Expenditures from Panama Canal Revolving Fund	503,009	(503,009)	.....
Tolls and other receipts deposited into Panama Canal Revolving Fund.....	(515,001)	515,001	.....
Net change in undeposited receipts.....	.....	(33)	(33)
Adjustments for properties previously transferred to Republic of Panama	(63)	.....	(63)
Property transferred to other U.S. Government agencies	(564)	(564)
	<u>(12,619)</u>	<u>11,959</u>	<u>(660)</u>

INVESTMENT AT SEPTEMBER 30, 1991	<u>\$120,557</u>	<u>\$352,622</u>	<u>\$473,179</u>
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The accompanying notes are an integral part of this statement.

Table 4.—Statement of Cash Flows
Fiscal Years Ended September 30, 1991 and 1990
(Dollars in thousands)

CASH FLOWS FROM OPERATING ACTIVITIES:		1991	1990
Net operating revenue		<u>\$3,588</u>	<u>\$7,016</u>
Adjustments to reconcile net revenue to net cash provided by operating activities:			
Depreciation.....	22,685	23,393	
Net change in reserves and other	2,455	2,500	
Changes in operating assets and liabilities:			
(Increase)/decrease in receivables	1,644	(1,959)	
(Increase)/decrease in inventories	6,100	(2,276)	
Decrease in other assets	14	534	
Increase in liabilities.....	<u>4,453</u>	<u>8,816</u>	
Total adjustments	<u>37,351</u>	<u>31,008</u>	
Net cash provided by operating activities		<u>40,939</u>	<u>38,024</u>
CASH FLOWS FROM INVESTING ACTIVITIES:			
Advances for capital	5,929	10,473	
Capital expenditures.....	<u>(34,214)</u>	<u>(35,858)</u>	
Net cash used in investing activities	<u>(28,285)</u>	<u>(25,385)</u>	
Net increase in cash.....	12,654	12,639	
Cash, beginning of year	<u>114,481</u>	<u>101,842</u>	
CASH, END OF YEAR	<u>\$127,135</u>	<u>\$114,481</u>	
SUPPLEMENTAL DISCLOSURE OF CASH FLOW INFORMATION:			
Cash paid during year for interest	<u>\$11,562</u>	<u>\$15,124</u>	

The accompanying notes are an integral part of this statement.

NOTES TO FINANCIAL STATEMENTS

The Panama Canal Commission ("Commission") is an agency of the Executive Branch of the United States Government, provided for by the Panama Canal Treaty of 1977, ("Treaty") and established by the Panama Canal Act of 1979 ("Act") enacted September 27, 1979. The Commission was established to carry out the responsibilities of the United States with respect to the Panama Canal under the Treaty. In fulfilling these obligations, the Commission manages, operates, and maintains the Canal, its complementary works, installations, and equipment, and provides for the orderly transit of vessels through the Canal. The Commission will perform these functions until the Treaty terminates on December 31, 1999, at which time the Republic of Panama will assume full responsibility for the Canal, which shall be turned over in operating condition and free of liens and debts, except as the two Parties may otherwise agree.

The operation of the waterway is conducted on a self-financing basis. The Commission is expected to recover through tolls and other revenues all costs of operating and maintaining the Canal, including interest, depreciation, working capital, capital for plant replacement, expansion and improvements, and payments to the Republic of Panama for public services and annuities. Revenues from tolls and all other sources are deposited in the U.S. Treasury in an account known as the Panama Canal Revolving Fund. The resources in this fund are available for continuous use and serve to finance Canal operating and capital programs which are reviewed annually by the Congress.

1. Summary of Significant Accounting Policies.

A summary of significant accounting policies follows:

a. Accounting and Reporting. The accounts of the Commission are maintained pursuant to the Accounting and Auditing Act of 1950. Under this Act, the Comptroller General of the United States prescribes the principles, standards and related requirements to be met. The Commission maintains its accounts in accordance with generally accepted accounting principles and follows STATEMENT OF FINANCIAL ACCOUNTING STANDARDS N° 71, "Accounting for the Effects of Certain Types of Regulation."

b. Reclassifications. Certain amounts for fiscal year 1990 have been reclassified to conform with the current financial statement presentation.

c. Cost Recovery. The basis for tolls rates ("statutory tolls formula") is prescribed in section 1602(b) of the Act and provides:

"Tolls shall be prescribed at rates calculated to produce revenues to cover as nearly as practicable all costs of maintaining and operating the Panama Canal, together with the facilities and appurtenances related thereto, including unrecovered costs incurred

on or after the effective date of this Act, interest, depreciation, working capital, payments to the Republic of Panama pursuant to paragraph 5 of Article III and paragraph 4(a) and (b) of Article XIII of the Panama Canal Treaty of 1977, and capital for plant replacement, expansion, and improvements. Tolls shall not be prescribed at rates calculated to produce revenues sufficient to cover payments to the Republic of Panama pursuant to paragraph 4(c) of Article XIII of the Panama Canal Treaty of 1977."

Unrecovered costs for any year are to be recovered from revenues in subsequent years.

d. Property, Plant and Equipment. Property, plant and equipment are recorded at cost. The cost of minor items of property, plant and equipment is charged to expense as incurred. Administrative and other related general expenses are recovered currently and not capitalized.

e. Advances for Capital. The Board of Directors may program a portion of tolls in excess of depreciation for plant replacement, expansion, or improvements. Such funds are considered capital advances from Canal users. Upon utilization, these advances are amortized through an offset to depreciation expense in an amount calculated to approximate the depreciation on assets acquired with such advances. In fiscal year 1991, \$5.9 million from tolls were programmed for this purpose. For fiscal year 1990, no amount was programmed.

At the direction of the Board of Directors, a system was implemented in fiscal year 1983 whereby shippers, for a fee, can make an advance reservation for a vessel transit. Such funds are considered capital advances from Canal users and upon utilization, the advances are amortized through an offset to depreciation expense in an amount calculated to approximate the depreciation on assets acquired with such advances. In fiscal year 1990, this system generated funds of \$10.5 million. As authorized by the Board of Directors, funds generated by this system in fiscal year 1991 were accounted for as general revenues.

f. Depreciation. Property, plant and equipment are depreciated over their estimated service lives at rates computed using the straight-line method. Composite depreciation is provided for premature plant retirements.

The recurring costs of dredging the waterway are charged to expense. Non-recurring dredging costs for substantial improvements and betterments to the waterway are considered additions to plant and are capitalized and depreciated over their estimated service lives.

g. Accounts Receivable. Uncollectible accounts are recognized as a reduction in revenue when written off.

h. Inventories. Operating materials and supplies are stated at average cost, plus cost of transportation. An allowance is provided for the estimated cost of obsolete and excess stock.

i. Retirement Benefits. Employer contributions to the United States Civil Service Retirement System, the Federal Employee Retirement System, and the Republic of Panama Social Security System are charged to expense when paid. The Commission has no liability for future payments to employees under these systems.

Non-United States citizen employees, who retired from predecessor agencies prior to October 5, 1958, receive benefits under a separate annuity plan. Payments made under this plan are recorded as a current year expense. Annual amounts expended for this plan were \$1.1 million in fiscal years 1991 and 1990, respectively. The liability for future annuity payments is reflected in the Statement of Financial Position as "Retirement benefits to certain former employees" and an equal amount is recorded as a deferred charge.

As required by the Act, the Commission is liable for the increase in the unfunded liability of the United States Civil Service Retirement Fund for benefits payable to employees and their survivors under the early retirement provisions of the Act. The deferred charge and liability recorded in these statements reflect the payments due to the Office of Personnel Management over the life of the Treaty. The annual installment of \$15.1 million to liquidate the increased liability is determined by the Office of Personnel Management. The gross amount to be recovered from tolls over the remaining life of the Treaty was \$121.2 million as of fiscal year 1991 and \$136.3 million as of fiscal year 1990.

j. Reserves. Reserves required to normalize expenses for incorporation in the tolls process, are provided for through annual charges to operations. These reserves cover such irregular costs as lock overhauls, floating equipment overhauls, probable losses from marine accidents, fire, damages other than fire, public liability and other casualties.

k. Housing Use Rights. No monetary value is assigned to the rights granted to the United States Government by the Republic of Panama to use Canal Area housing transferred to the Republic of Panama under the terms of the Treaty. The cost to manage, maintain and provide livability improvements to these quarters is charged to expense. Rental income is included in other revenues.

l. Compensation Benefits for Work Injuries. The Federal Employees' Compensation Act (FECA) provides compensation for performance of duty injuries for eligible employees. The costs of the FECA program are recognized over the life of the Treaty.

2. Budgetary Resources.

a. Cash, accounts receivable, and the borrowing authority are the resources used by the Commission to determine its solvency position. Incurring obligations in excess of the solvency position would be a violation of the Antideficiency Act.

b. The Commission has authority to borrow funds from the U.S.

Treasury up to \$100.0 million. No funds were borrowed during fiscal years 1991 and 1990.

3. Unrecovered Costs due from Subsequent Revenues.

Unrecovered costs from prior years must be recovered before determining any net operating revenue due to the Republic of Panama. The cumulative unrecovered costs from prior fiscal years operations were \$9.7 million as of September 30, 1989. Of this amount, \$7.0 million was recovered in fiscal year 1990. Net operating revenue for fiscal year 1991 was \$3.6 million, which when netted against the outstanding unrecovered costs of \$2.7 million, leaves a balance of \$0.9 million payable to the Republic of Panama.

4. Allowance for Obsolete and Excess Stock.

The allowance for obsolete and excess stock provides for: (1) the specific disposal of individual inventory items likely to occur; and (2) the systematic cost recognition for inventory items retained for possible use, but whose actual use most often does not occur. During fiscal year 1991, a comprehensive evaluation of inventory items that are infrequently issued, but retained for possible use, was completed which indicated the need to increase the allowance for these items by \$5.6 million.

5. Compensation Benefits for Work Injuries.

The Commission administers a program to compensate certain employees for death and disability resulting from performance of duty injuries or illnesses as set forth in the Federal Employees' Compensation Act. All United States citizen employees are eligible for coverage, as are non-United States citizen employees hired prior to October 1, 1979. As provided by FECA, employees and certain dependents are beneficiaries for various periods that can extend to life.

The liability and deferred charge recorded in these statements reflect the payments due to a Department of Labor fund established pursuant to Public Law 100-705. The Department of Labor will be reimbursed from this fund for all expected future payments for accidents, adjusted for inflation and interest earned. An evaluation, as of September 30, 1991, was prepared by an independent actuarial firm. The values for year-end 1991 assets and liabilities were adjusted accordingly. There was no material change in the amounts. The gross amount to be recovered from tolls over the remaining life of the Treaty to retire this liability is \$59.5 million in fiscal year 1991 and \$71.7 million in fiscal year 1990.

6. Interest—Bearing Investment of the United States Government.

The interest-bearing investment of the United States Government in the Panama Canal is determined based on section 1603(a) of the Act. The interest-bearing investment of the United States Government was \$120.6 million at September 30, 1991 and \$133.2 million at September 30, 1990.

7. Temporary 20 Percent Surcharge.

In fiscal years 1989 to 1991 the Commission has incurred additional costs due to the politically unstable conditions that existed in the Republic of Panama.

The Board of Directors approved the recovery of these costs through a temporary 20 percent surcharge on linehandling and tug service. The surcharge was terminated on February 28, 1991. Surcharge revenues of \$5.9 million and \$6.5 million for fiscal years 1991 and 1990 respectively, were included in "Other revenues".

8. Contingent Liabilities and Commitments.

The Commission is a defendant in certain legal actions related to personal injury, employment disputes and other matters related to the Commission's business. In the opinion of management, the settlement of these legal actions will not have a material adverse effect on the financial position of the Commission.

Commitments under uncompleted construction contracts and unfilled purchase orders amounted to \$31.7 million at September 30, 1991 and \$34.3 million at September 30, 1990.

Cash and negotiable securities held by United States depositories for the Commission to guarantee payment by third parties of their obligations were \$14.5 million and \$13.2 million at September 30, 1991 and 1990, respectively.

The Treaty provides that an annual amount of up to \$10.0 million per year be paid to the Republic of Panama out of operating revenues to the extent that such revenues exceed expenditures. If the operating revenues in any year do not produce a surplus sufficient to cover this payment, the unpaid balance shall be paid from operating surpluses in future years. The balance contingently payable to the Republic of Panama amounted to \$110.2 million and \$101.1 million at September 30, 1991 and 1990, respectively. However, as set forth in the Treaty and in the Act, nothing shall be construed as obligating the United States Government to pay, after the date of the termination of the Treaty, any unpaid balance accumulated before such date.

Chapter VI

STATISTICAL TABLES

Shipping Statistics

Table 1.—Panama Canal Traffic—Fiscal Years 1982 through 1991

Fiscal year	Total traffic		Traffic assessed tolls on net tonnage basis		Traffic assessed tolls on displacement tonnage basis		
	Number of transits	Tolls	Long tons of cargo	Number of transits	Panama Canal net tonnage	Number of transits	Displacement tonnage
OCEANGOING COMMERCIAL TRAFFIC¹							
1982	14,009	\$323,958,366	185,452,332	13,976	202,884,207	33	129,684
1983	11,707	285,983,805	145,590,759	11,668	169,503,918	39	132,431
1984	11,230	286,677,844	140,470,818	11,199	162,335,342	31	116,335
1985	11,515	298,497,802	138,643,243	11,498	168,941,997	17	86,623
1986	11,925	321,073,748	139,945,181	11,901	182,750,830	24	73,631
1987	12,230	328,372,714	148,690,380	12,206	186,416,485	24	130,129
1988	12,234	337,866,211	156,482,641	12,209	191,506,903	25	106,599
1989	11,989	327,850,613	151,636,113	11,964	185,769,983	25	101,710
1990	11,941	353,725,982	157,072,979	11,904	181,604,268	37	153,514
1991	12,572	372,279,573	162,695,886	12,544	191,786,895	28	120,375
OCEANGOING U.S. GOVERNMENT TRAFFIC¹							
1982	110	\$ 1,546,746	285,451	67	794,282	43	309,206
1983	125	1,721,925	354,873	77	812,840	48	350,699
1984	137	2,388,272	329,607	88	1,131,865	49	410,682
1985	129	2,223,938	259,524	85	1,148,311	44	248,967
1986	85	1,553,037	176,853	53	708,616	32	309,161
1987	78	1,384,125	205,701	46	662,286	32	239,023
1988	69	1,361,393	296,140	46	714,055	23	129,545
1989	74	1,806,539	224,121	62	994,711	12	103,020
1990	91	1,707,864	248,442	63	821,340	28	193,160
1991	173	2,214,170	516,130	69	902,085	104	458,899
FREE OCEANGOING TRAFFIC^{1,2}							
1982	23	.....	.....	9	5,010	14	21,903
1983	14	.....	2,504	9	9,119	5	5,986
1984	17	.....	.....	4	2,224	13	21,025
1985	10	.....	20	4	2,731	6	8,771
1986	13	.....	.....	1	556	12	20,759
1987	5	.....	5	4	2,224	1	1,300
1988	15	.....	.....	6	3,312	9	16,765
1989	12	.....	.....	6	3,312	6	9,709
1990	20	.....	6	4	2,218	16	30,530
1991	18	.....	.....	4	2,218	14	24,702
TOTAL OCEANGOING TRAFFIC¹							
1982	14,142	\$325,505,112	185,737,783	14,052	203,683,499	90	460,793
1983	11,846	287,705,730	145,948,136	11,754	170,325,877	92	489,116
1984	11,384	289,066,116	140,800,425	11,291	163,469,431	93	548,042
1985	11,654	300,721,740	138,902,787	11,587	170,093,039	67	344,361
1986	12,023	322,626,785	140,122,034	11,955	183,460,002	68	403,551
1987	12,313	329,756,840	148,896,086	12,256	187,080,995	57	370,452
1988	12,318	339,227,604	156,778,781	12,261	192,224,270	57	252,909
1989	12,075	329,657,153	151,860,234	12,032	186,767,106	43	214,439
1990	12,052	355,433,846	157,321,427	11,971	182,427,826	81	377,204
1991	12,763	374,493,743	163,212,016	12,617	192,691,198	146	603,976

Table 1.—Panama Canal Traffic—Fiscal Years 1982 through 1991
(Continued)

Fiscal year	Total traffic			Traffic assessed tolls on net tonnage basis		Traffic assessed tolls on displacement tonnage basis	
	Number of transits	Tolls	Long tons of cargo	Number of transits	Panama Canal net tonnage	Number of transits	Displace- ment tonnage
SMALL COMMERCIAL TRAFFIC³							
1982	830	\$ 73,228	928	826	50,399	4	315
1983	810	73,887	669	810	48,033	.....	.....
1984	802	76,921	652	800	48,008	2	145
1985	793	73,710	468	792	45,694	1	110
1986	912	89,577	3,704	904	55,249	8	470
1987	852	90,829	3,282	852	55,827	.....	.....
1988	844	79,805	1,422	842	49,245	2	64
1989	997	96,158	8,311	996	60,156	1	430
1990	1,017	115,180	1,497	1,016	66,999	1	98
1991	1,079	118,675	537	1,077	67,982	2	64
SMALL U.S. GOVERNMENT TRAFFIC³							
1982	241	\$ 10,757	.....	12	415	229	10,973
1983	242	11,406	5	12	332	230	11,177
1984	241	11,998	.....	8	336	233	11,282
1985	273	12,464	.....	15	773	258	11,113
1986	316	17,840	.....	20	627	296	16,407
1987	236	11,106	.....	25	987	211	9,572
1988	246	11,917	.....	21	901	225	10,375
1989	287	12,316	.....	13	738	274	11,018
1990	240	8,931	.....	23	903	217	6,684
1991	248	12,319	.....	12	654	236	10,065
SMALL FREE TRAFFIC^{2,3}							
1982	58	.....	70	40	2,803	18	1,172
1983	56	.....	8	39	2,321	17	2,010
1984	96	.....	59	86	4,637	10	1,360
1985	46	.....	3	32	1,721	14	1,103
1986	27	.....	80	20	1,371	7	674
1987	43	.....	57	26	1,451	17	1,012
1988	33	.....	.....	15	1,081	18	1,189
1989	30	.....	3	14	878	16	1,141
1990	16	.....	.....	5	249	11	800
1991	18	.....	.....	13	568	5	545
TOTAL PANAMA CANAL TRAFFIC							
1982	15,271	\$325,589,097	185,738,781	14,930	203,737,116	341	473,253
1983	12,954	287,791,023	145,948,818	12,615	170,376,563	339	502,303
1984	12,523	289,155,035	140,801,136	12,185	163,522,412	338	560,829
1985	12,766	300,807,914	138,903,258	12,426	170,141,227	340	356,687
1986	13,278	322,734,202	140,125,818	12,899	183,517,249	379	421,102
1987	13,444	329,858,775	148,899,425	13,159	187,139,260	285	381,036
1988	13,441	339,319,326	156,780,203	13,139	192,275,497	302	264,537
1989	13,389	329,765,627	151,868,548	13,055	186,828,878	334	227,028
1990	13,325	355,557,957	157,322,924	13,015	182,495,977	310	384,786
1991	14,108	374,624,737	163,212,553	13,719	192,760,402	389	614,650

¹ Oceangoing traffic includes ships of 300 net tons and over, Panama Canal measurement, or of 500 displacement tons and over on vessels paying tolls on displacement basis (dredges, warships, etc.).

² Free traffic includes ships of the Colombian and Panamanian Governments and ships transiting for repair by the Commission.

³ Includes vessels under 300 net tons, Panama Canal measurement (or under 500 displacement tons for vessels assessed on displacement tonnage).

Table 2.—Oceangoing Commercial Traffic by Months—Fiscal Years 1991 and 1990

	Number of Transits		Panama Canal Net Tonnage		Long Tons of Cargo		Tolls	
	1990-91	1989-90	1990-91	1989-90	1990-91	1989-90	1990-91	1989-90
October	1,057	1,021	16,707,635	16,360,994	13,958,989	14,027,059	\$32,363,567	\$31,851,517
November	1,031	964	16,880,588	15,091,501	13,450,705	13,243,670	32,624,748	29,324,107
December	1,012	858	16,476,713	13,406,458	13,990,720	12,027,765	32,203,919	26,047,287
January	1,069	1,050	16,380,900	15,630,132	12,765,155	13,299,098	31,672,292	30,668,718
February	1,082	940	16,238,079	14,062,994	12,973,905	11,746,814	31,441,967	27,430,212
March	1,177	1,094	16,753,382	15,690,218	14,224,070	12,903,998	32,544,260	30,501,502
April	1,065	1,041	15,176,965	15,322,207	13,192,667	12,808,903	29,673,759	29,976,244
May	1,042	1,014	15,492,825	15,605,266	13,511,448	13,676,274	30,126,362	30,276,197
June	1,015	958	15,042,574	14,135,376	13,665,432	12,223,942	29,168,535	27,628,594
July	1,021	1,015	15,803,262	14,977,088	14,441,553	13,612,363	30,954,441	29,181,655
August	1,021	997	16,072,796	15,713,962	13,649,501	14,187,644	31,004,138	30,707,793
September	980	989	14,761,176	15,608,072	12,871,741	13,315,449	28,501,584	30,192,155
Total	12,572	11,941	191,786,895	181,604,268	162,695,886	157,072,979	\$372,279,573	\$353,725,982
Average per month	1,048	995	15,982,241	15,133,689	13,557,991	13,089,415	\$31,023,298	\$29,477,165

NOTE: The above includes only commercial vessels of 300 net tons and over, Panama Canal measurement, or of 500 displacement tons and over on vessels paying tolls on a displacement tonnage basis. Statistics on these vessels, except as relates to displacement tonnage, have been included in the table above.

Table 3.—Canal Traffic¹ by Flag of Vessel—Fiscal Year 1991

Flag	Num- ber of transits	Measured tonnage			Long tons of cargo
		Panama Canal net	Registered gross ²	Tolls	
Algeria	1	29,645	37,327	\$ 59,586	51,438
Antigua-Barbuda	23	78,852	80,976	141,293	33,466
Argentina	8	145,465	132,325	287,099	205,871
Austria	10	211,504	260,896	413,470	235,277
Bahamas	642	8,148,180	9,549,824	15,849,555	5,286,567
Belgium	28	531,813	658,727	1,041,762	563,460
Bermuda	9	108,343	78,470	217,769	15,033
Brazil	30	712,632	838,973	1,416,704	881,245
Bulgaria	2	17,042	20,567	34,254	22,467
Canada	8	18,565	32,693	48,076	70
Cayman Islands	5	51,391	56,525	103,296	46,179
Chile	93	964,223	1,075,028	1,904,732	1,021,687
Colombia	127	984,861	938,389	1,969,201	197,435
Costa Rica	1	393	250	629	.....
Cuba	100	620,534	707,244	1,228,294	532,829
Cyprus	680	7,738,319	8,931,440	15,053,098	8,845,768
Czechoslovakia	21	217,268	266,661	427,712	293,107
Denmark	229	5,238,130	6,419,923	10,416,302	3,657,265
Ecuador	333	2,735,112	3,087,812	5,314,519	1,901,387
Egypt	2	44,186	54,590	79,756	38,561
Faroës	1	716	1,154	1,439	5
Federal Republic of Germany	359	4,688,085	5,706,285	9,347,768	3,351,871
France	45	797,039	738,220	1,581,758	512,575
Greece	705	12,334,508	14,050,766	23,807,448	15,853,412
Honduras	38	89,715	104,743	163,690	29,173
Hong Kong	8	145,295	172,929	287,691	241,004
Hungary	1	2,680	3,416	5,387	4,254
India	37	723,543	886,216	1,375,256	845,710
Iran	12	132,924	172,548	258,094	28,294
Israel	66	1,618,238	2,099,822	3,252,658	1,165,513
Italy	119	2,335,259	2,778,156	4,495,372	2,361,105
Japan	522	8,665,376	6,247,950	16,257,923	2,354,977
Kuwait	4	86,249	112,123	173,360	119,386
Liberia	1,519	29,872,180	30,454,723	57,452,054	23,480,901
Luxembourg	14	293,582	370,704	583,734	292,661
Malaysia	24	349,634	404,673	689,527	507,728
Malta	123	1,506,757	1,814,639	2,892,312	1,858,782
Marshall Islands	5	55,716	63,513	111,989	81,296
Mauritius	1	20,613	24,497	41,432	40,506
Mexico	49	872,874	1,062,599	1,594,843	500,692
Morocco	17	191,867	226,603	375,116	268,492
Myanmar	58	937,158	1,105,498	1,817,739	1,055,456
Netherlands	303	3,565,551	3,883,265	6,957,728	2,348,165
Netherlands-Antilles	11	55,223	57,145	108,832	18,804
New Zealand	1	415	522	834	50
Nicaragua	3	3,372	3,459	6,317	1,494
Norway	747	11,874,318	12,681,224	23,393,185	12,864,932
Panama	2,080	30,738,530	31,688,644	59,055,580	22,892,763
People's Republic of China	253	4,561,366	5,534,528	9,047,125	5,815,006
Peru	108	1,260,800	1,354,443	2,459,435	1,216,233
Philippines	393	6,476,632	7,259,755	12,764,719	9,022,880
Poland	88	699,776	851,430	1,379,301	415,460
Portugal	5	60,293	76,293	119,697	94,893
Qatar	9	109,766	135,864	220,630	105,113
Romania	5	35,250	40,342	68,833	15,542
Saudi Arabia	5	31,579	32,673	58,353	6,975
Singapore	213	4,184,586	4,161,842	8,028,677	3,027,327
Somali Republic	1	9,315	10,543	18,723	4,400
South Africa	1	11,720	.....	23,557	3,296
South Korea	135	3,400,383	3,757,634	6,763,493	3,003,298

Table 3.—Canal Traffic¹ by Flag of Vessel—Fiscal Year 1991—Continued

Flag	Num- ber of transits	Measured tonnage			Long tons of cargo
		Panama Canal net	Registered gross ²	Tolls	
Spain	23	223,133	237,124	\$ 447,182	144,256
Sri Lanka	34	322,716	372,026	597,699	63,480
St. Vincent & Grenadines	80	1,148,678	1,312,420	2,250,124	1,383,143
Sweden	66	2,252,810	1,812,210	4,486,817	880,071
Switzerland	15	288,475	348,189	565,381	440,053
Taiwan	176	5,634,770	6,664,886	11,291,080	4,524,074
Toga	1	13,647	5,998	27,430	1,411
Tunisia	3	24,219	30,546	45,370	13,644
Turkey	37	594,265	693,050	1,148,514	759,820
U.S.S.R.	403	3,694,962	4,227,515	7,244,126	2,262,573
United Arab Emirates	6	93,147	112,118	187,225	80,833
United Kingdom	343	5,620,279	6,887,574	10,949,977	4,524,188
United States	430	5,185,320	5,056,067	9,764,267	3,569,250
Vanuatu	218	3,030,134	2,801,371	5,755,302	2,044,886
Venezuela	161	574,721	655,307	1,118,469	408,915
Yugoslavia	135	1,682,089	2,002,432	3,335,433	1,941,924
Zaire	1	8,189	9,441	16,460	13,829
Total	12,572	191,786,895	206,588,297	\$372,279,573	162,695,886

¹ Includes only commercial vessels of 300 net tons and over, Panama Canal measurement, or of 500 displacement tons and over on vessels paying tolls on displacement basis (dredges, warships, etc.).

² Includes 15 transits where no registered tonnage was reported.

NOTE.—In Canal traffic statistics, foreign naval vessels such as transports, supply ships, tankers, etc., with a measurement of 300 net tons (Panama Canal measurement) and over, and vessels of war, dredges, etc., with a displacement of 500 tons and over, are classified as oceangoing commercial vessels. Statistics on these vessels, except as related to displacement tonnage, have been included in the table above. As displacement tonnage cannot be combined with net tonnage, the following table shows statistics covering 28 vessels which transited the Canal during fiscal year 1991 and paid tolls on displacement tonnage.

Flag	Type	Num- ber of transits	Displace- ment tonnage	Tolls
Canada	Navy	3	11,145	\$ 12,482
Colombia	Dredge	1	1,400	1,568
Ecuador	Navy	3	5,350	5,992
France	Navy	3	25,667	28,747
Japan	Navy	3	12,592	14,103
Peru	Navy	6	19,912	22,301
Spain	Navy	2	7,340	8,221
Sweden	Navy	2	3,500	3,920
United Kingdom	Navy	2	7,443	8,336
United States	Navy	1	14,745	16,514
United States	Dredge	2	11,281	12,635
Total		28	120,375	\$134,820

Table 4.—Classification of Canal Traffic¹ by Type of Vessel—Fiscal Year 1991

Type of Vessel	Laden			Ballast			Grand Total
	Atlantic to Pacific	Pacific to Atlantic	Total	Atlantic to Pacific	Pacific to Atlantic	Total	
CARGO AND CARGO/PASSENGER SHIPS:							
Bulk Carriers:							
Number of transits	1,857	1,464	3,321	296	405	701	4,022
Panama Canal net tonnage (thousands)	40,208	32,156	72,364	10,928	8,005	18,933	91,297
Tolls (thousands of dollars)	\$80,818	\$64,634	\$145,452	\$17,485	\$12,808	\$30,293	\$175,745
Cargo (thousands of long tons)	59,975	31,844	91,819	.....	.....	.....	91,819
Container Cargo Ships:							
Number of transits	791	810	1,601	12	26	38	1,639
Panama Canal net tonnage (thousands)	17,627	18,677	36,304	119	287	406	36,710
Tolls (thousands of dollars)	\$35,430	\$37,542	\$72,971	\$190	\$459	\$649	\$73,620
Cargo (thousands of long tons)	13,509	12,154	25,663	.....	.....	.....	25,663
General Cargo Ships:							
Number of transits	751	668	1,419	71	71	142	1,561
Panama Canal net tonnage (thousands)	6,211	5,647	11,858	440	288	727	12,585
Tolls (thousands of dollars)	\$12,485	\$11,350	\$23,834	\$703	\$460	\$1,164	\$24,998
Cargo (thousands of long tons)	5,234	4,152	9,387	.....	.....	.....	9,387
Passenger Ships: ²							
Number of transits	101	68	169	6	2	8	177
Panama Canal net tonnage (thousands)	2,251	1,520	3,771	67	29	96	3,867
Tolls (thousands of dollars)	\$4,525	\$3,055	\$7,580	\$107	\$47	\$154	\$7,734
Cargo (thousands of long tons) .....	.....	.....	.....	.....	.....	.....	.....
Refrigerated Cargo Ships:							
Number of transits	843	1,477	2,320	709	29	738	3,058
Panama Canal net tonnage (thousands)	5,196	9,192	14,388	4,201	135	4,336	18,723
Tolls (thousands of dollars)	\$10,444	\$18,476	\$28,920	\$6,721	\$216	\$6,937	\$35,857
Cargo (thousands of long tons)	865	4,344	5,208	.....	.....	.....	5,208
Tank Ships:							
Number of transits	787	405	1,192	105	336	441	1,633
Panama Canal net tonnage (thousands)	12,338	6,889	19,227	2,219	5,142	7,361	26,588
Tolls (thousands of dollars)	\$24,800	\$13,847	\$38,647	\$3,550	\$8,227	\$11,778	\$50,425
Cargo (thousands of long tons)	19,038	10,580	29,618	.....	.....	.....	29,618

OTHER TYPE SHIPS:

Naval Vessels:

Number of transits	158	139	297	61	99	160	25	25
Displacement tonnage (thousands)	834	488	1,322	93	600	693	108	108
Tolls (thousands of dollars)	\$1,677	\$980	\$2,657	\$161	\$963	\$1,124	\$121	\$121
Cargo (thousands of long tons)	839	162	1,001	.....	.....	.....	1	1
Barges, Dredges, Drydocks, Tugs, etc.:								
Number of transits	158	139	297	61	99	160	25	25
Panama Canal net tonnage (thousands)	83,831	74,081	157,912	17,973	13,886	31,859	12,090	12,090
Displacement tonnage (thousands)	\$168,501	\$148,903	\$317,404	\$28,758	\$22,217	\$50,975	189,772	189,772
Tolls (thousands of dollars)	98,621	63,073	161,694	.....	.....	.....	13	13
Cargo (thousands of long tons) .....	.....	.....	.....	.....	.....	.....	\$3,781	\$3,781
SUMMARY:							1,001	1,001
Total Cargo and Cargo / Passenger Ships:								
Number of transits	5,130	4,892	10,022	1,199	869	2,068	12,090	12,090
Panama Canal net tonnage (thousands)	83,831	74,081	157,912	17,973	13,886	31,859	189,772	189,772
Tolls (thousands of dollars)	\$168,501	\$148,903	\$317,404	\$28,758	\$22,217	\$50,975	\$368,379	\$368,379
Cargo (thousands of long tons)	98,621	63,073	161,694	.....	.....	.....	161,694	161,694
Total Other Type Ships:								
Number of transits	158	139	297	70	115	185	482	482
Panama Canal net tonnage (thousands)	834	488	1,322	93	600	693	2,015	2,015
Displacement tonnage (thousands)	\$1,677	\$980	\$2,657	\$191	\$1,053	\$1,244	120	120
Tolls (thousands of dollars)	839	162	1,001	.....	.....	.....	\$3,901	\$3,901
Cargo (thousands of long tons) .....	.....	.....	.....	.....	1	1	1,002	1,002
Grand Total Ships:								
Number of transits	5,288	5,031	10,319	1,269	984	2,253	12,572	12,572
Panama Canal net tonnage (thousands)	84,666	74,569	159,234	18,067	14,486	32,553	191,787	191,787
Displacement tonnage (thousands)	\$170,178	\$149,883	\$320,061	\$28,949	\$23,270	\$52,219	\$372,280	\$372,280
Tolls (thousands of dollars)	99,460	63,235	162,695	.....	1	1	162,696	162,696

¹ Includes only commercial vessels of 300 net tons and over (Panama Canal measurement) for vessels paying tolls on net tonnage basis, or of 500 displacement tons and over for

vessels paying on displacement tonnage.

Table 5.—Laden and Ballast Traffic by Flag of Vessel
Fiscal Year 1991

Flag	Laden			Ballast		
	Num- ber of transits	Panama Canal net tonnage	Tolls	Num- ber of transits	Panama Canal net tonnage	Tolls
Algeria	1	29,645	\$ 59,586	10	41,950	\$ 67,120
Antigua-Barbuda	13	36,902	74,173	1	12,893	20,629
Argentina	7	132,572	266,470	1	28,421	45,474
Austria	9	183,083	367,997	1	28,421	45,474
Bahamas	494	6,859,676	13,787,948	148	1,288,504	2,061,607
Belgium	24	465,514	935,683	4	66,299	106,078
Bermuda	9	108,343	217,769	1	28,421	45,474
Brazil	28	674,373	1,355,490	2	38,259	61,214
Bulgaria	2	17,042	34,254	1	28,421	45,474
Canada	4	14,365	28,874	1	4,200	6,720
Cayman Islands	5	51,391	103,296	1	28,421	45,474
Chile	81	882,866	1,774,561	12	81,357	130,171
Colombia	112	955,746	1,921,049	14	29,115	46,584
Costa Rica	1	28,874	53,765	1	393	629
Cuba	85	574,243	1,154,228	15	46,291	74,066
Cyprus	550	6,516,555	13,098,276	130	1,221,764	1,954,822
Czechoslovakia	18	195,326	392,605	3	21,942	35,107
Denmark	195	4,964,131	9,977,903	34	273,999	438,398
Ecuador	271	2,274,018	4,570,776	59	461,094	737,750
Egypt	1	22,093	44,407	1	22,093	35,349
Faeroes	1	716	1,439	1	28,421	45,474
Federal Republic of Germany	340	4,504,470	9,053,985	19	183,615	293,784
France	32	677,436	1,361,646	10	119,603	191,365
Greece	556	9,932,281	19,963,885	149	2,402,227	3,843,563
Honduras	26	49,136	98,763	12	40,579	64,926
Hong Kong	6	134,681	270,709	2	10,614	16,982
Hungary	1	2,680	5,387	1	28,421	45,474
India	27	530,701	1,066,709	10	192,842	308,547
Iran	10	110,770	222,648	2	22,154	35,446
Israel	66	1,618,238	3,252,658	1	28,421	45,474
Italy	94	1,851,116	3,720,743	25	484,143	774,629
Japan	426	5,802,971	11,663,972	93	2,862,405	4,579,848
Kuwait	4	86,249	173,360	1	28,421	45,474
Liberia	1,256	23,553,403	47,342,016	263	6,318,777	10,110,043
Luxembourg	13	278,055	558,891	1	15,527	24,843
Malaysia	22	317,349	637,871	2	32,285	51,656
Malta	93	1,174,392	2,360,528	30	332,365	531,784
Marshall Islands	5	55,716	111,989	1	28,421	45,474
Mauritius	1	20,613	41,432	1	28,421	45,474
Mexico	31	483,524	971,883	18	389,350	622,960
Morocco	14	166,169	334,000	3	25,698	41,117
Myanmar	46	776,307	1,560,377	12	160,851	257,362
Netherlands	249	3,055,723	6,142,003	54	509,828	815,725
Netherland-Antilles	9	49,939	100,377	2	5,284	8,454
New Zealand	1	415	834	1	28,421	45,474
Nicaragua	2	2,248	4,518	1	1,124	1,798
Norway	677	10,717,747	21,542,671	70	1,156,571	1,850,514
Panama	1,610	24,082,761	48,406,350	470	6,655,769	10,649,230
People's Republic of China	232	4,265,707	8,574,071	21	295,659	473,054
Peru	86	1,024,032	2,058,304	16	236,768	378,829
Philippines	343	5,858,800	11,776,188	50	617,832	988,531
Poland	74	633,315	1,272,963	14	66,461	106,338
Portugal	4	56,654	113,875	1	3,639	5,822
Qatar	9	109,766	220,630	1	28,421	45,474
Romania	4	30,325	60,953	1	4,925	7,880
Saudi Arabia	3	19,089	38,369	2	12,490	19,984
Singapore	171	3,252,047	6,536,614	42	932,539	1,492,062
Somali Republic	1	9,315	18,723	1	28,421	45,474
South Africa	1	11,720	23,557	1	28,421	45,474
South Korea	129	3,226,536	6,485,337	6	173,847	278,155
Spain	19	199,873	401,745	2	23,260	37,216
Sri Lanka	21	198,422	398,828	13	124,294	198,870
St. Vincent & Grenadines	68	1,005,460	2,020,975	12	143,218	229,149
Sweden	60	2,133,031	4,287,392	4	119,779	191,646
Switzerland	12	253,223	508,978	3	35,252	56,403
Taiwan	173	5,549,872	11,155,243	3	84,898	135,837
Togo	1	13,647	27,430	1	28,421	45,474
Tunisia	2	16,146	32,453	1	8,073	12,917
Turkey	28	482,170	969,162	9	112,095	179,532
U.S.S.R.	351	3,249,235	6,530,962	52	445,727	713,163
United Arab Emirates	6	93,147	187,225	1	28,421	45,474
United Kingdom	276	4,754,132	9,555,805	65	866,147	1,385,835
United States	286	3,518,205	7,071,592	141	1,667,115	2,667,384

**Table 5.—Laden and Ballast Traffic by Flag of Vessel
Fiscal Year 1991—Continued**

Flag	Laden			Ballast		
	Number of transits	Panama Canal net tonnage	Tolls	Number of transits	Panama Canal net tonnage	Tolls
Vanuatu	173	2,212,409	\$ 4,446,942	45	817,725	\$ 1,308,360
Venezuela	136	485,159	975,170	25	89,562	143,299
Yugoslavia	122	1,570,952	3,157,614	13	111,137	177,819
Zaire	1	8,189	16,460	....	....	....
Total	10,319	159,234,268	\$320,060,549	2,225	32,552,627	\$52,084,203

Above table involves only commercial vessels of 300 net tons or over, Panama Canal measurement.

Table 6.—Segregation of Transits¹ by Registered Gross Tonnage—Fiscal Year 1991

	<i>Average gross tonnage per vessel</i>	<i>Registered gross tonnage</i>	<i>Total²</i>
<i>Under 2,000</i>	<i>2,000 to 3,999</i>	<i>4,000 to 5,999</i>	<i>37,327</i>
Algeria	12	5	30,000
Antigua-Barbuda		3	39,999
Argentina		1	15,000
Austria	19	29	10,000
Bahamas		2	10,000
Belgium		1	14,999
Bermuda		6	14,999
Brazil		2	14,999
Bulgaria		6	14,999
Canada	3	1	14,999
Cayman Islands		2	14,999
Chile	7	1	14,999
Colombia	48	4	14,999
Costa Rica	1		14,999
Cuba	1	44	14,999
Cyprus	34	11	14,999
Czechoslovakia		54	14,999
Denmark		10	14,999
Ecuador		1	14,999
Egypt		1	14,999
Faroës	1	4	14,999
Federal Republic of Germany		33	14,999
France	6	4	14,999
Greece	58	17	14,999
Honduras	23	3	14,999
Hong Kong	1		14,999
Hungary		1	14,999
India		3	14,999
Iran			14,999
Israel			14,999
Italy	1	1	14,999
Japan	190	21	14,999
Kuwait		39	14,999
Liberia		47	14,999
Luxembourg			14,999
Malaysia			14,999
Malta			14,999
Marshall Islands	6	9	14,999
Mauritius			14,999
Mexico		2	14,999

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Morocco	6	1	13	16	2	7	17	17	13,330
Myanmar	48	2	20	27	89	9	45	58	226,603
Netherlands	11	4	2	5	23	303	1,105,498
Netherlands-Antilles	.....	.....	.....	.....	.....	.....	.....	.....	11	3,883,265
New Zealand	1	.....	.....	.....	.....	.....	.....	.....	1	5,195
Nicaragua	3	.....	.....	115	161	31	119	234	3	522
Norway	7	103	6	332	317	192	310	190	67	3,459
Panama	67	1	4	1	34	23	28	118	44	1,153
People's Republic of China	.....	2	7	9	.....	2	68	5	9	12,681,224
Peru	.....	.....	56	27	36	49	58	92	747	16,976
Philippines	.....	.....	5	22	20	29	8	1	2,080	15,235
Poland	1	2	.....	.....	.....	.....	.....	.....	88	31,688,644
Portugal	.....	2	.....	.....	.....	.....	3	.....	5	253
Qatar	.....	.....	.....	.....	.....	9	.....	.....	9	5,534,528
Romania	.....	.....	2	.....	3	.....	.....	.....	5	21,876
Saudi Arabia	.....	.....	5	.....	.....	.....	.....	.....	5	1,340,883
Singapore	6	4	8	17	80	.....	16	27	38	102
Somali Republic	.....	.....	.....	.....	1	.....	19	27	17	393
South Korea	5	.....	.....	.....	4	17	53	52	4	8,475
Spain	8	.....	.....	2	12	.....	9	2	.....	1,346,146
Sri Lanka	.....	.....	6	.....	2	1	37	19	4	1,259,755
St. Vincent & Grenadines	11	.....	.....	2	.....	18	22	11	11	851,430
Sweden	.....	.....	2	.....	.....	2	2	7	1	9,675
Switzerland	2	2	.....	.....	.....	2	33	61	80	76,293
Taiwan	2	.....	.....	.....	.....	.....	.....	.....	135	15,259
Toga	.....	.....	1	.....	.....	.....	.....	.....	21	21,876
Tunisia	.....	.....	5	.....	.....	3	.....	.....	34	1,340,883
Turkey	.....	9	37	31	66	81	99	49	22	1,259,755
U.S.S.R.	.....	.....	3	23	21	99	5	.....	2	851,430
United Arab Emirates	15	1	15	15	27	20	95	50	22	1,153
United Kingdom	116	15	9	2	31	23	28	19	19	1,153
United States	57	2	2	4	.....	22	10	.....	10	1,153
Vanuatu	121	2	11	8	24	42	25	16	2	1,153
Venezuela	.....	.....	.....	.....	1	.....	.....	9	135	1,153
Yugoslavia	.....	.....	.....	.....	.....	.....	.....	.....	1	1,153
Zaire	.....	407	825	1,132	1,457	2,298	1,422	1,975	584	2,002,432
Total	942	7.5	3.2	6.6	9.0	11.6	18.3	11.3	4.7	9,441
Percent of Total	.....	.....	.....	.....	.....	.....	.....	.....	1	16,484

¹ Includes only commercial vessels of 300 net tons and over, Panama Canal measurement.

² Excludes 28 vessels paying tolls on displacement tonnage basis and 15 transits where no registered tonnage was reported.

Table 7.—Principal Commodities Shipped through Canal by Fiscal Years 1989 through 1991

South Atlantic to Pacific		1989 1990 1991		North Pacific to Atlantic			
				Commodity		1991	1990
				Canned and Refrigerated Foods		5,229	4,796
				Canned Foods		140	128
				Fish		24	21
				Fruit		15	4
				Milk		68	80
				Other and unclassified		32	23
				Refrigerated Foods		5,089	4,668
				Bananas		2,115	1,621
				Dairy Products		48	11
				Fish		714	927
				Fruit, excluding bananas		1,288	1,154
				Meat		117	63
				Other and unclassified		808	891
				Chemicals and Petroleum Chemicals		1,181	962
				Caustic Soda		29	5
				Chemicals, unclassified		1,061	871
				Petroleum Chemicals, miscellaneous		92	91
				Coal and Coke (excluding petroleum coke)		3,756	3,051
				Grains		3,312	2,242
				Barley		595	292
				Corn		202	10
				Oats		48	3
				Rice		1	1
				Sorghum		419	432
				Soybeans		9	350
				Wheat		2,161	1,363
				Other and unclassified		49	45
				Lumber and Products		5,883	6,861
				Boards and planks		2,779	3,695
				Plywood, veneers, composition board		667	748
				Pulpwood		2,058	2,063
				Other and unclassified		379	355
				Machinery and Equipment		1,537	1,558
							1,927

[Thousands of long tons]

PANAMA CANAL COMMISSION

59

44	32	22	11	17
309	310	235	1,378	1,384
73	86	71	59	106
32	33	21	26	9
1	1	1	24	2
48	35	36	39	40
4,325	4,248	5,445	2,808	2,950
				3,526
189	241	229	96	67
20	3	7	28	52
2,672	2,351	3,435	1,242	1,471
261	147	259	337	333
605	900	950	197	166
577	606	565	908	863
142	204	124	4,814	4,733
				3,337
15	7	28	...	3
1	3	1	398	424
21	33	29	...	3
98	96	63	1,139	1,374
7	65	13	323	222
11,702	11,713	13,156	2,954	2,710
558	480	778	1,562	2,079
				2,502
15	7	28	25	28
Asbestos			795	1,281
Borax			296	383
Infusorial earth			339	268
Salt			32	52
Soda and sodium compounds			75	67
Sulfur			7,714	8,686
Nitrates, Phosphates, and Potash			6,375	7,410
Ammonium compounds.			1,706	3,040
Fishmeal.			19	46
Nitrate of soda.			488	471
Phosphates.			295	413
Potash.			243	224
Fertilizers, unclassified.			172	313
Ores and Metals			4	12
Ores			...	...
Alumina / bauxite			30	927
Chrome			24	763
Copper			67	540
Iron			161	2,521
Lead			8	2,128
Manganese			92	1,855
Tin			...	...
Zinc			30	37
Other and unclassified			234	189

Table 7.—Principal Commodities Shipped through Canal by Fiscal Years 1989 through 1991—Continued

Commodity	South				North			
	1989	1990	1991	1991	1990	1989	1989	1989
Metals.....	2,394	2,974	2,865	.....	1,340	1,275	1,282	.....
Aluminum.....	283	409	503	.....	12	13	14	.....
Copper.....	2	8	3	.....	978	892	872	.....
Iron.....	83	291	194	.....	19	14	12	.....
Lead.....	15	15	1	.....	104	80	67	.....
Scrap.....	1,929	2,186	2,102	.....	.....	28	90	.....
Tin, including tinplate	22	11	12	.....	.....	8	11	7
Zinc.....	25	7	8	.....	178	220	163	.....
Other and unclassified	52	48	41	.....	40	19	58	.....
Other Agricultural Commodities.....	1,836	1,803	1,848	.....	3,287	3,634	3,324	.....
Beans, edible	123	78	11	.....	63	56	55	.....
Cocoa and cacao beans	5	4	2	.....	44	40	50	.....
Coffee, raw and processed	14	7	.....	.....	318	421	275	.....
Copra and coconuts	116	51	67	.....	6	7	.....	.....
Cotton, raw	54	13	17	.....	61	64	82	.....
Molasses	42	122	97	.....	633	714	672	.....
Oilsseeds	5	12	11	.....	33	88	106	.....
Peas, dry	3	4	2	.....	36	11	52	.....
Rubber, raw	1,473	1,508	1,640	.....	36	47	137	.....
Skins and hides	9,838	11,709	13,936	.....	2	27	1	.....
Sugar .....	.....	.....	.....	.....	2,053	2,153	1,891	.....
Wool, raw .....	.....	.....	.....	.....	3	6	4	.....
Petroleum and Products .....	.....	.....	.....	.....	10,964	13,521	12,396	.....
Asphalt	30	25	70	.....	1	.....	.....	.....
Crude oil	2,089	2,687	3,215	.....	5,024	6,575	5,784	.....
Diesel oil	1,404	1,430	1,368	.....	141	98	418	.....
Fuel oil, residual	995	1,891	2,506	.....	2,037	3,620	3,179	.....
Gasoline	1,554	1,938	1,804	.....	1,162	310	486	.....
Jet fuel	847	912	819	.....	26	70	5	.....
Kerosene	94	101	200	.....	.....	.....	.....	.....
Liquefied gas	1,065	999	1,338	.....	41	147	90	.....
Lubricating oil	659	612	578	.....	129	171	156	.....
Petroleum coke	923	784	748	.....	2,365	2,447	2,261	.....
Other and unclassified	179	331	390	.....	38	82	14	.....

Table 8.—Origin and Destination of Commercial Cargo through the Panama Canal From Atlantic to Pacific during Fiscal Year 1991

62

Segregated by Countries in Principal Trade Routes

STATISTICAL TABLES

[Long tons]											
To West Coast Central America											
To West Coast United States				To W. C. Canada				To West Coast Central America			
Alaska	Hawaii	Main-land	Total	Canada	Costa Rica	El Sal- vador	Guate- mala	Mexico	Nica- ragua	Pan- ama	Central America (other) ¹
											Total
EAST COAST NORTH AMERICA:											
United States:											
North Atlantic ports	6,094	.....	99,471	105,565	200	2,460	47,358	50,319	21,406	.....	59,778
South Atlantic ports	13,512	17	30,810	44,339	15,490	2,535	6,547	.....	203,631	.....	7,727
Great Lakes ports	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	255,536
Gulf ports	16	.....	922,028	922,044	137,612	505,867	580,700	464,978	1,359,339	160,276	50,999
United States (other) ¹	.....	16	775	775	153,302	510,862	634,605	515,297	1,564,376	160,276	86,095
Total United States	19,622	17	1,033,084	1,072,723	1,53,302	1,53,302	1,53,302	1,53,302	1,53,302	1,53,302	1,53,302
EAST COAST CANADA	.....	180	48,699	48,879	.....	.....	8,927	10,053	12,500	64,888	5,119
EAST COAST CENTRAL AMERICA:											
Mexico	27,914	.....	27,914	27,914	.....	.....	1,349	7,737	26,015	548,195	35,034
Panama	.....	.....	26,151	26,151	.....	.....	.....	.....	.....	160	.....
Central America (other) ¹	.....	.....	60,754	60,754	.....	.....	.....	.....	20,237	44	44
Cristobal, R. P. ²	166	.....	5,618	5,784	.....	31	24	52	48	14	1,000
Total Central America	166	27,914	92,523	120,603	.....	1,380	260,816	26,067	568,480	35,048	1,204
EAST COAST SOUTH AMERICA:											
Brazil	.....	.....	812,616	812,616	53,565	810	6,798	21,373	110,894	.....	.....
Colombia	172,697	479,681	652,378	75,201	.....	819	.....	71,650	1,229	1,883	1,052
Venezuela	114,389	1,428,374	1,542,763	166	41,656	440,331	347,733	29,979	610,972	4,584	28,819
South America (other) ¹	.....	141,063	141,063	16,406	25	3,068	3,863	90,125	.....	44	502
Total South America	287,086	2,861,734	3,148,820	145,338	42,491	451,016	372,969	302,648	612,201	6,467	29,915
WEST INDIES:											
Cuba	.....	.....	9,148	9,148	.....	1,423	1,789	3,241	49,414	4,851	9,244
Jamaica	.....	.....	739,192	739,192	4	1,393	.....	.....	.....	.....	61
Netherlands West Indies	.....	.....	184,176	184,176	22,476	7,691	43,907	17,081	3,604	30,182	30,182
Trinidad/Tobago	.....	33,189	231,088	264,277	.....	163	19,079	101	.....	7,265	143
West Indies (other) ¹	.....	33,189	1,163,604	1,196,793	22,480	10,670	49,758	49,515	8,455	7,265	39,649
Total West Indies	33,189	1,163,604	1,196,793	22,480	10,670	49,758	49,515	8,455	7,265	39,649	64,523

294,064

Table 8.—Origin and Destination of Commercial Cargo through the Panama Canal From Atlantic to Pacific during Fiscal Year 1991
Segregated by Countries in Principal Trade Routes—Continued

[Long tons]

	To Oceania													
	To West Coast South America					South America (other) ¹					Australia	French Oceania	New Zealand (other) ¹	Oceania Total
	Chile	Colombia	Ecuador	Peru	Total	South America (other) ¹	Peru	Total	Australia	French Oceania	New Zealand (other) ¹	Oceania Total		
EAST COAST NORTH AMERICA:														
United States:														
North Atlantic ports	279,807	36,282	112,246	144,510	26,543	599,388	169,004	703	28,121	47,315	245,143			
South Atlantic ports	112,966	40,280	224,522	85,470	36,262	499,500	181,780	4,939	102,904	44,828	334,451			
Great Lakes ports	1,002,889	577,778	682,644	904,754	214,704	3,382,769	1,893,912	.....	212,432	147,572	2,253,916		
Gulf ports	577,778	16,249	43,243	29,047	45,086	227,162	20,416	310	59,920	39,300	169,946			
United States (other) ¹	93,537	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total United States	1,489,199	670,589	1,062,655	1,163,781	322,595	4,708,819	2,315,112	5,952	403,377	279,015	3,003,456			
EAST COAST CANADA	103,096	51,815	20,421	67,206	4,162	246,700	46,908	4	62,134	28,427	137,473			
EAST COAST CENTRAL AMERICA:														
Mexico	21,780	39,823	81,765	97,131	37,470	277,969	6,782	.....	.....	2,384	9,166		
Panama	1,32	1,226	3,319	1,149	5,316	11,142	.....	.....	.....	.....	.....
Central America (other) ¹	.....	.....	2,876	8,962	886	13,570	.....	.....	.....	.....	.....
Cristobal, R.P. ²	8,074	.....	125	12,497	1,697	6,377	28,770	.....	.....	.....	.....
Total Central America	29,986	44,050	106,543	100,863	50,009	331,451	6,782	.....	.....	2,384	9,166		
EAST COAST SOUTH AMERICA:														
Brazil	.....	7,025	78,167	13,455	3,441	102,088	.....	.....	.....	.....	.....
Colombia	213,415	316,980	5,354	415,704	19,742	.....	.....	.....	.....	.....	.....
Venezuela	1,356,137	7,824	258,919	248,543	91,734	1,963,157	18	.....	.....	.....	18		
South America (other) ¹	13,386	24,806	9,792	15,359	4,837	68,180	1,181	.....	.....	2,126	.....	3,307	
Total South America	1,582,938	356,635	352,232	693,061	119,301	3,104,167	1,199	.....	.....	2,126	.....	3,325	
WEST INDIES:														
Cuba	.....	21	.....	.....	69	90	.....	19	.....	37,748	.....	37,748	
Jamaica	110,552	35,170	14,540	25,499	10,983	293,744	.....	46	213	278			
Netherlands West Indies	19,699	70,285	25,747	8,279	.....	124,010	150	.....	100	50	50		
Trinidad/Tobago	.....	4,036	1,712	.....	17	5,850	715	.....	27	2,150	613		
West Indies (other)	85	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,892		
Total West Indies	130,336	109,512	41,999	33,778	108,069	423,694	884	.....	37,921	2,776	41,581		

Table 8.—Origin and Destination of Commercial Cargo through the Panama Canal From Atlantic to Pacific during Fiscal Year 1991
Segregated by Countries in Principal Trade Routes—Continued

[Long tons]											Percent of total Pacific-bound cargo		STATISTICAL TABLES	
To Asia														
To Asia														
China	Taiwan	Hong Kong	Indonesia	Japan	Philipine Islands	Singapore	South Korea	Thailand	U.S.S.R.	Australia (other)	Total	Grand total		
EAST COAST NORTH AMERICA:														
Atlantic ports	108,485	1,026,839	292,035	26,761	1,886,562	26,155	177,621	1,746,930	36,749	.....	534,258	5,862,395	6,994,012	7.0
Jamaican ports	323,093	607,928	302,692	24,446	2,182,344	12,755	142,840	368,970	16,540	.....	391,802	4,373,320	5,522,636	5.6
Other ports	34,030	.....	.....	97,527	.....	.....	113,943	.....	.....	92,903	338,403	338,403	0.3	
Gulf ports	8,142,095	6,126,715	189,888	266,478	22,767,248	343,282	306,578	5,133,724	302,558	77,756	2,283,825	45,940,147	56,357,445	56.7
United States (other) y	138,883	578,203	166,688	.....	582,333	18	59,111	647,189	.....	.....	320,061	2,492,486	2,903,334	2.9
Total United States	8,712,556	3,737,715	951,213	317,685	27,516,014	382,210	686,150	8,010,756	355,847	77,756	3,622,849	59,006,751	72,115,830	72.5
EAST COAST CANADA														
301,084	251,125	60,347	8,508	485,371	.....	5,304	625,580	.....	.....	.....	227,650	1,964,969	2,506,564	2.5
EAST COAST CENTRAL AMERICA:														
Mexico	228,850	7,830	.....	6,376	70,517	.....	20,377	10,258	42,505	.....	9,900	396,613	1,595,280	1.6
Panama . . . . .	.....	.....	.....	.....	.....	7,428	.....	.....	.....	.....	.....	.....	140,687	0.1
Central America (other) ¹ . . . . .	.....	.....	.....	.....	314	.....	.....	.....	.....	.....	1,440	7,428	108,822	0.1
Cristobal, R.P. ² . . . . .	.....	177	492	6,376	78,259	.....	20,377	10,258	42,505	.....	11,340	2,423	39,024	0.0
Total Central America	228,850	8,007	492	6,376	.....	.....	.....	.....	.....	.....	406,464	1,883,813	1.9	
EAST COAST SOUTH AMERICA:														
Brazil	21,843	1,392	759	.....	675,550	.....	1,248	24,456	6,183	.....	9,084	740,515	1,848,659	1.9
Colombia	2,461	7,838	35,282	8,168	93,609	.....	20	54,099	57,573	.....	.....	104,258	1,880,215	1.9
Venezuela	14,478	18,607	674	.....	395,853	4,906	2	.....	.....	.....	25,644	595,675	5,664,327	5.7
South America (other)	6,282	.....	.....	.....	85,611	.....	.....	18,685	.....	.....	.....	129,859	456,442	0.5
Total South America	45,064	27,837	36,715	8,168	1,250,623	4,906	1,250	97,260	63,756	.....	34,728	1,570,307	9,849,643	9.9
WEST INDIES:														
Cuba	746,262	24,142	.....	308,461	.....	11	26,927	.....	.....	142,670	55,438	1,276,973	1,384,773	1.4
Jamaica	33,223	35,392	.....	19,905	.....	3,102	23,617	.....	.....	11,700	127,158	136,645	0.1	
Netherlands West Indies	20,558	12,820	.....	.....	82,944	.....	.....	.....	.....	20,226	160,165	1,173,652	1,173,652	1.2
Trinidad/Tobago . . . . .	.....	.....	.....	.....	4,833	.....	.....	57,366	.....	37,525	121,954	553,835	553,835	0.6
West Indies (other) ¹ . . . . .	.....	22,230	.....	.....	416,143	.....	3,113	107,910	.....	142,670	124,976	1,689,439	419,146	0.4
Total West Indies	766,820	68,273	59,534	.....	.....	.....	.....	.....	.....	.....	.....	3,668,051	3,668,051	3.7

Includes cargo not routed to permit segregation between definite countries.

2. Includes both local and transshipped cargo.

Table 9.—Origin and Destination of Commercial Cargo through the Panama Canal From Pacific to Atlantic during Fiscal Year 1991
Segregated by Countries in Principal Trade Routes

[Long tons]											
	To East Coast United States			To E. C. Canada			To East Coast Central America				Total
	North Atlantic ports	South Atlantic ports	Great Lakes ports	United States (other) ¹	Total	Canada	Mexico	Panama	Central America (other) ¹	Cristobal R.P. ²	
	1,081	34	155,144	156,259	15,747	221	23,705	.....	.....	.....	23,705
United States:	17	111,997	93,053	93,070	93,070	21	23,705	.....	.....	.....	23,705
Alaska	410,695	411,793	201,279	37,792	261,763	165,137	239,235	707	9,285	67,377	316,604
Hawaii	112,031	.....	449,476	37,792	1,011,092	181,105	262,940	707	9,285	67,377	340,309
Mainland .....	.....	.....	544,942	258,166	1,208,936	.....	27,861	.....	14,468	.....	42,329
Total United States	187,329	218,499	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST COAST CANADA .....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
WEST COAST CENTRAL AMERICA:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Costa Rica	26,843	25,027	36,789	88,659	.....	4,709	.....	.....	.....	.....	309
El Salvador	17,263	18,897	38,660	74,820	.....	.....	.....	.....	.....	.....	15
Guatemala	141,671	21,162	206,672	67,880	10,331	39,956	.....	5,730	5,730	5,730	578
Honduras .....	.....	6,158	8,122	14,280	.....	439,746	.....	.....	.....	.....	46,264
Mexico	362,223	145,385	430,938	31,987	970,533	.....	.....	.....	.....	.....	.....
Nicaragua	985	531	69,333	61,136	131,454	.....	.....	.....	.....	.....	10,020
Panama	3,892	.....	70,175	74,598	.....	1,070	.....	500	500	500	1,570
Central America (other)	.....	.....	25,158	22,392	47,550	.....	.....	.....	.....	.....	100
Balboa, R.P. ²	2,176	2,301	2,034	977	7,488	.....	.....	.....	.....	.....	100
Total Central America	555,053	219,461	887,481	184,372	1,846,767	10,331	485,481	.....	6,230	11,022	502,733
WEST COAST SOUTH AMERICA:	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Chile	878,120	233,187	445,999	250,412	1,807,718	14,118	25,168	283	1,770	1,358	28,579
Colombia	79,245	91,930	75,631	83,363	330,169	969	382	72	310	523	1,287
Ecuador	1,574,271	102,864	1,047,512	88,828	2,813,475	.....	3,344	747,279	102,763	58,862	912,248
Peru	611,704	101,054	172,794	181,713	1,067,265	60	52,800	26	.....	540	53,366
South America (other) ¹	79,293	45,376	59,425	39,813	223,907	486	20,239	105	6,119	7,634	34,117
Total South America	3,222,633	574,411	1,801,361	644,129	6,242,534	15,633	101,933	747,765	110,962	68,937	1,029,597

See footnotes at end of table.

Table 9.—Origin and Destination of Commercial Cargo through the Panama Canal From Pacific to Atlantic during Fiscal Year 1991
 Segregated by Countries in Principal Trade Routes—Continued

See footnotes at end of table.

Table 9.—Origin and Destination of Commercial Cargo through the Panama Canal From Pacific to Atlantic during Fiscal Year 1991
Segregated by Countries in Principal Trade Routes—Continued

[Long tons]														
To Europe														
	Belgium	Den- mark	Finland	France	Italy	Nether- lands	Spain/ Portugal	Sweden	United Kingdom	U.S.S.R.	Yugo- savia of Germany	Fed. Rep. of Germany	Europe (other)	Total
WEST COAST NORTH AMERICA:														
United States:														
Alaska	212,065	5,240	.....	624	45,893	3,803	116,480	.....	30,078	.....	.....	40,249	130,610	585,042
Hawaii	612,982	23,022	6,601	168,636	277,244	1,895,537	178,170	82,774	384,795	84,442	22,321	513,663	1,082,528	5,332,715
Mainland	825,047	28,262	6,601	169,260	323,137	1,899,340	294,650	82,774	414,873	84,442	22,321	553,912	1,213,138	5,917,757
Total United States,	1,018,256	268	.....	464,165	696,788	865,851	491,148	7,445	1,665,911	81,094	33,593	181,288	1,960,189	7,465,996
WEST COAST CANADA														
Costa Rica	4,630	.....	.....	.....	1,885	.....	.....	.....	.....	.....	.....	537	5,754	12,806
El Salvador	11,272	.....	.....	.....	5,751	800	.....	.....	.....	.....	.....	9,567	23,801	51,191
Guatemala . . . . .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	786	16,703	17,889
Honduras . . . . .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,154	.....	2,154
Mexico	17,194	.....	.....	.....	18,624	.....	.....	62,801	.....	.....	.....	29,130	34,676	162,425
Nicaragua	110,823	.....	.....	2,993	2,716	82	3,071	.....	.....	120	6,917	4,784	9,080	140,586
Panama	18,517	.....	.....	.....	74,369	5,001	7,728	.....	.....	.....	.....	297,274	8,204	411,093
Central America (other) ¹	7,248	.....	.....	.....	.....	3,947	4,991	.....	.....	1,717	.....	18,673	14,825	51,401
Balboa, R.P. ²	8	.....	.....	.....	2,993	.....	2	.....	.....	.....	.....	2	71	83
Total Central America	169,692	.....	.....	.....	2,993	97,594	14,783	79,391	.....	.....	1,837	6,917	362,907	113,114
WEST COAST SOUTH AMERICA:														
Chile	513,105	5,905	140,351	187,091	544,120	290,614	35,622	210,496	.....	397	4,909	516,257	498,966	2,947,833
Colombia	14,383	.....	6,150	329	31,867	1,823	2,361	3,082	.....	758	166,124	37,888	264,765	
Ecuador	223,436	1,273	.....	15,759	139,321	35,590	52,652	451	13,084	6,717	51,839	302,336	270,803	1,112,028
Peru	264,767	1,273	.....	61,668	136,412	61,067	45,165	4,463	123,962	31,235	65,854	255,915	177,519	1,229,300
South America (other) ¹	29,324	.....	51,001	108,828	68,283	28,002	1,755	17,374	369,484	23,977	26,094	72,066	796,188	
Total South America	1,045,035	1,273	5,905	274,929	571,981	740,927	418,256	44,652	367,998	407,833	147,337	1,266,746	1,057,242	6,350,114

See footnotes at end of table.

**Commercial Cargo through the Panama Canal From Pacific to Atlantic during Fiscal Year 1991
Segregated by Countries in Principal Trade Routes—Continued**

OCEANIA:		GRAND TOTAL		Percent of Atlantic-bound cargo	
Australia	700	.....	.....	.....	5.8
British Oceania	.....	.....	.....	192,262	0.3
French Oceania	.....	.....	.....	6,660	0.0
New Zealand	537	22,048	.....	24,478	971,839
Oceania (other) ¹	150	22,048	.....	160,926	0.3
Total Oceania	1,387	22,048	.....	24,478	4,968,485
ASIA:					7.9
China	1,614	.....	.....	2,379,202	3.8
Taiwan	550	.....	.....	2,783	1,126,810
Hong Kong	.....	.....	.....	2,208	973,327
Indonesia	2,913	.....	.....	.....	401,246
Japan	.....	389	25,508	6,723	6,333,606
Philippine Islands	.....	.....	.....	.....	326,550
Singapore	1,773	.....	.....	703,309	1.1
South Korea	.....	.....	.....	.....	874,523
Thailand	.....	.....	.....	.....	171,797
U.S.S.R.	.....	.....	.....	.....	103,297
Asia (other)	.....	.....	484	1,826	2,052,351
Total Asia	6,850	.....	389	25,992	13,540
GRAND TOTAL	379,794	475,750	1,947,907	1,200,175	15,446,018
	0.6	0.8	3.1	1.9	0.2
				0.7	7.3
					100.0%

- | Also includes cargo not routed to permit segregation between definite countries.

² Includes both local and transhipped cargo.

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST UNITED STATES TO WEST COAST			
UNITED STATES:			
Canned and refrigerated foods, miscellaneous.....	1	.....	.....
Chemicals and petroleum chemicals.....	603	541	509
Caustic soda.....	78	119	149
Chemicals, unclassified.....	397	332	197
Petroleum chemicals, miscellaneous.....	128	90	163
Grains.....	.....	57	.....
Soybeans.....	.....	57	.....
Machinery and equipment, miscellaneous.....	1	.....	7
Manufactures of iron and steel.....	2	.....	2
Other and unclassified.....	2	.....	2
Minerals, miscellaneous.....	.....	.....	11
Nitrates, phosphates and potash.....	.....	.....	66
Ammonium compounds.....	.....	.....	29
Phosphates.....	.....	.....	37
Ores and metals, miscellaneous.....	6	.....	28
Petroleum and products.....	387	801	744
Crude oil.....	.....	91	.....
Diesel oil.....	.....	.....	19
Fuel oil, residual.....	68	29	54
Gasoline.....	77	339	221
Jet fuel.....	.....	35	101
Kerosene.....	.....	.....	11
Lubricating oil.....	212	271	290
Petroleum coke.....	.....	36	.....
Other and unclassified.....	30	.....	48
Miscellaneous.....	73	39	33
Container cargo.....	37	29	30
All other and unclassified.....	36	10	3
Total.....	1,073	1,439	1,401
EAST COAST UNITED STATES TO WEST COAST			
CANADA:			
Chemicals and petroleum chemicals.....	59	48	24
Chemicals, unclassified.....	30	4	.....
Petroleum chemicals, miscellaneous.....	29	44	24
Manufactures of iron and steel.....	16	.....	.....
Plates, sheets and coils.....	10	.....	.....
Wire, bars and rods.....	6	.....	.....
Nitrates, phosphates and potash.....	79	194	171
Phosphates.....	79	194	171
Total.....	153	243	195
EAST COAST UNITED STATES TO WEST COAST			
CENTRAL AMERICA:			
Chemicals and petroleum chemicals.....	21	17	1
Caustic soda.....	8	5	1
Chemicals, unclassified.....	13	12	.....
Coal and coke (excluding petroleum coke).....	36	.....	39
Coal.....	36	.....	39
Grains.....	1,965	2,014	1,368
Corn.....	998	1,229	571
Rice.....	17	.....	57

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST UNITED STATES TO WEST COAST			
CENTRAL AMERICA—Continued			
Grains—Continued			
Sorghum	218	272	133
Soybeans	202	152	318
Wheat	528	361	277
Other and unclassified	2	.....	12
Lumber and products, miscellaneous .....	.....	1	1
Machinery and equipment .....	.....	.....	3
Other and unclassified .....	.....	.....	3
Manufactures of iron and steel, miscellaneous	8	9	1
Minerals, miscellaneous	2	.....	.....
Nitrates, phosphates and potash	1,091	1,328	917
Ammonium compounds	164	181	129
Phosphates	799	989	662
Potash	23	4	10
Fertilizers, unclassified	105	154	116
Ores and metals	27	113	29
Ores, miscellaneous	6	.....	.....
Metals	21	113	29
Scrap	21	113	29
Other agricultural commodities	4	38	2
Beans, edible .....	.....	.....	1
Oilseeds	4	26	.....
Peas, dry .....	.....	.....	1
Sugar .....	.....	12	.....
Petroleum and products	370	363	276
Diesel oil	173	144	113
Fuel oil, residual .....	.....	.....	34
Gasoline	143	196	113
Jet fuel	15	8	6
Kerosene	2	8	7
Liquefied gas	6	5	2
Lubricating oil	2	.....	1
Other and unclassified	29	2	.....
Miscellaneous	146	83	104
Flour, wheat .....	.....	.....	1
Groceries, miscellaneous	3	.....	.....
Oil, vegetable	24	17	24
Paper and paper products	49	28	17
Tallow	69	37	48
Container	1	1	3
All other and unclassified	1	1	11
Total	<u>3,670</u>	<u>3,966</u>	<u>2,741</u>
EAST COAST UNITED STATES TO WEST COAST			
SOUTH AMERICA:			
Canned and refrigerated foods, miscellaneous	7	4	2
Chemicals and petroleum chemicals	273	275	264
Caustic soda	113	81	88
Chemicals, unclassified	136	181	157
Petroleum chemicals, miscellaneous	24	13	19
Coal and coke (excluding petroleum coke)	173	525	591
Coal	173	525	591
Grains	1,615	1,514	1,331

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST UNITED STATES TO WEST COAST			
SOUTH AMERICA—Continued			
Grains—Continued			
Corn	504	349	259
Oats . . . . .	. . . . .	1	2
Rice	59	174	97
Sorghum	54	30	33
Soybeans	24	90	48
Wheat	949	865	889
Other and unclassified	25	5	3
Lumber and products	9	4	7
Plywood, veneers, composition board . . . . .	. . . . .	1	1
Pulpwood	8	2	3
Other and unclassified	1	1	3
Machinery and equipment	61	74	92
Agricultural machinery and implements	12	15	18
Automobiles, trucks, accessories and parts	31	28	27
Construction machinery and equipment	11	18	27
Electrical machinery and apparatus	2	7	7
Other and unclassified	5	6	13
Manufactures of iron and steel	61	45	28
Angles, shapes and sections	11	5	8
Nails, tacks and spikes . . . . .	. . . . .	. . . . .	1
Plates, sheets and coils	3	4	10
Tubes, pipes and fittings	16	5	6
Wire, bars and rods	31	28	2
Other and unclassified . . . . .	. . . . .	3	1
Minerals, miscellaneous	17	22	24
Asbestos	2	. . . . .	2
Soda and sodium compounds	15	18	17
Sulfur . . . . .	. . . . .	4	5
Nitrates, phosphates and potash	583	452	593
Ammonium compounds	28	14	11
Fishmeal	13	. . . . .	. . . . .
Phosphates	178	197	187
Potash	33	35	36
Fertilizers, unclassified	331	206	359
Ores and metals	107	63	58
Ores	17	18	18
Alumina/bauxite . . . . .	. . . . .	1	. . . . .
Other and unclassified	17	17	18
Metals	90	45	40
Aluminum	1	18	2
Iron . . . . .	. . . . .	1	. . . . .
Scrap	89	26	36
Tin, including tinplate . . . . .	. . . . .	. . . . .	1
Other and unclassified . . . . .	. . . . .	. . . . .	1
Other agricultural commodities	89	51	12
Beans, edible	8	6	1
Copra and coconuts . . . . .	. . . . .	1	1
Cotton, raw . . . . .	. . . . .	1	2
Oilseeds	1	. . . . .	7
Peas, dry	5	3	. . . . .
Rubber, raw	1	1	1
Skin and hides . . . . .	. . . . .	3	. . . . .

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST UNITED STATES TO WEST COAST			
SOUTH AMERICA—Continued			
Other agricultural commodities—Continued			
Sugar	74	36	.....
Petroleum and products	<u>387</u>	<u>352</u>	<u>558</u>
Crude oil .....	.....	.....	3
Diesel oil	220	202	301
Fuel oil, residual	37	.....	27
Gasoline	73	39	114
Jet fuel .....	.....	42	54
Kerosene .....	.....	27	1
Liquefied gas	37	7	.....
Lubricating oil	20	34	58
Other and unclassified .....	.....	1	.....
Miscellaneous	<u>1,327</u>	<u>978</u>	<u>876</u>
Bricks and tile .....	.....	1	4
Clay, fire and china	6	5	11
Fibers, plant .....	.....	1	2
Flour, wheat	82	73	50
Glass and glassware .....	.....	1	2
Groceries, miscellaneous	1	2	1
Marble and stone .....	.....	.....	20
Oil, coconut	6	6	3
Oil, fish	1	.....	.....
Oil, vegetable	34	30	36
Paper and paper products	248	187	147
Resin	16	19	25
Rubber, manufactured	5	3	7
Tallow	54	34	42
Textiles	4	3	4
Container cargo	766	548	454
All other and unclassified	104	65	68
Total	<u>4,709</u>	<u>4,360</u>	<u>4,436</u>
EAST COAST UNITED STATES TO BALBOA, R.P.:—			
Canned and refrigerated foods, miscellaneous	2	5	5
Chemicals and petroleum chemicals, miscellaneous	10	11	6
Grains	<u>182</u>	<u>113</u>	<u>135</u>
Corn	62	32	35
Soybeans	36	25	28
Wheat	84	55	71
Other and unclassified .....	.....	1	1
Minerals, miscellaneous .....	.....	2	1
Nitrates, phosphates and potash	3	.....	.....
Ores and metals, miscellaneous	4	9	5
Other agricultural commodities, miscellaneous .....	.....	.....	4
Petroleum and products	<u>263</u>	<u>249</u>	<u>161</u>
Diesel oil	97	84	103
Fuel oil, residual	160	143	28
Gasoline	2	20	8
Jet fuel .....	.....	1	19
Kerosene	3	.....	.....
Other and unclassified	1	1	3
Miscellaneous	<u>36</u>	<u>41</u>	<u>33</u>
Groceries, miscellaneous	5	2	1
Oil, vegetable	10	4	.....

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST UNITED STATES TO BALBOA, R.P.—			
Continued			
Miscellaneous—Continued			
Tallow	1	2	1
Container cargo	19	27	26
All other and unclassified	1	6	5
Total	<u>500</u>	<u>429</u>	<u>350</u>
EAST COAST UNITED STATES TO OCEANIA:			
Canned and refrigerated foods, miscellaneous	10	16	12
Chemicals and petroleum chemicals	828	648	838
Caustic soda	688	517	660
Chemicals, unclassified	132	116	158
Petroleum coke, miscellaneous	8	15	20
Coal and coke (excluding petroleum coke)	14	32	3
Coke	14	32	3
Grains	<u>131</u>	<u>94</u>	<u>86</u>
Corn	11	18	8
Sorghum .....	.....	3	24
Soybeans	115	60	54
Wheat	5	.....	.....
Other and unclassified .....	.....	13	.....
Lumber and products	14	22	20
Pulpwood	14	22	20
Machinery and equipment	7	15	6
Agricultural machinery and equipment	2	2	2
Automobiles, trucks, accessories and parts	2	11	1
Construction machinery and equipment	2	1	3
Other and unclassified	1	1	.....
Manufactures of iron and steel, miscellaneous	42	11	25
Minerals, miscellaneous	18	39	18
Soda and sodium compounds	18	39	18
Nitrates, phosphates and potash	<u>905</u>	<u>885</u>	<u>1,026</u>
Ammonium compounds	13	9	18
Phosphates	623	483	864
Potash	35	42	43
Fertilizers, unclassified	234	351	101
Ores and metals, miscellaneous	39	15	16
Other agricultural commodities, miscellaneous .....	.....	9	.....
Petroleum and products	<u>377</u>	<u>274</u>	<u>313</u>
Crude oil .....	.....	.....	21
Fuel oil, residual	46	3	.....
Gasoline	66	35	28
Jet fuel .....	.....	.....	4
Kerosene .....	.....	.....	1
Liquefied gas	60	35	57
Lubricating oil	28	25	23
Petroleum coke	173	133	155
Other and unclassified	4	43	24
Miscellaneous	<u>618</u>	<u>632</u>	<u>657</u>
Carbon black	3	.....	.....
Clay, fire and china	29	37	33
Oil, vegetable	2	1	1
Paper and paper products	12	11	7
Resin	13	3	5

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST UNITED STATES TO OCEANIA—			
Continued			
Miscellaneous—Continued			
Rubber, manufactured.....	.....	6	.....
Container cargo.....	535	555	607
All other and unclassified.....	24	19	4
Total.....	<u>3,003</u>	<u>2,692</u>	<u>3,020</u>
EAST COAST UNITED STATES TO ASIA:			
Canned and refrigerated foods.....	408	298	394
Canned foods, miscellaneous.....	.....	12	8
Refrigerated foods:.....	<u>408</u>	<u>286</u>	<u>386</u>
Bananas.....	1	.....	.....
Fish.....	.....	1	1
Fruit, excluding bananas.....	136	44	167
Meat.....	10	2	.....
Other and unclassified.....	261	239	218
Chemicals and petroleum chemicals.....	<u>4,377</u>	<u>3,605</u>	<u>3,639</u>
Caustic soda.....	75	138	219
Chemicals, unclassified.....	2,652	2,262	1,979
Petroleum chemicals, miscellaneous.....	1,650	1,205	1,441
Coal and coke (excluding petroleum coke).....	<u>3,651</u>	<u>4,205</u>	<u>4,416</u>
Coal.....	3,377	4,153	4,206
Coke.....	274	52	210
Grains.....	<u>25,085</u>	<u>23,835</u>	<u>24,727</u>
Corn.....	13,404	12,348	9,593
Oats.....	16	.....	.....
Rice.....	6	13	.....
Sorghum.....	1,426	1,718	1,750
Soybeans.....	5,847	5,625	4,684
Wheat.....	4,024	3,934	8,283
Other and unclassified.....	362	197	417
Lumber and products.....	<u>3,350</u>	<u>2,301</u>	<u>2,013</u>
Boards and planks.....	147	9	37
Plywood, veneers, composition board.....	.....	.....	2
Pulpwood.....	744	728	899
Other and unclassified.....	2,459	1,564	1,075
Machinery and equipment.....	<u>69</u>	<u>45</u>	<u>51</u>
Agricultural machinery and equipment.....	2	8	.....
Automobiles, trucks, accessories and parts.....	13	8	14
Construction machinery and equipment.....	31	19	13
Electrical machinery and apparatus.....	3	3	6
Other and unclassified.....	20	7	18
Manufactures of iron and steel.....	<u>2,140</u>	<u>1,203</u>	<u>1,425</u>
Angles, shapes and sections.....	117	85	35
Nails, tacks and coils.....	.....	.....	13
Plates, sheets and coils.....	1,466	900	1,031
Tubes, pipes and fittings.....	77	10	85
Wires, bars and rods.....	236	100	108
Other and unclassified.....	244	108	153
Minerals, miscellaneous.....	12	65	11
Nitrates, phosphates and potash.....	<u>6,924</u>	<u>5,361</u>	<u>5,230</u>
Ammonium compounds.....	240	8	54
Phosphates.....	6,134	4,956	4,726
Potash.....	228	93	32

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST UNITED STATES TO ASIA—			
Continued			
Nitrates, phosphates and potash—Continued			
Fertilizers, unclassified.....	322	304	418
Ores and metals	2,050	1,958	1,659
Ores, miscellaneous	67	56	87
Metals.....	1,983	1,902	1,572
Aluminum	1	.....	1
Copper .....	.....	6	.....
Iron.....	52	3	.....
Lead .....	.....	3	.....
Scrap	1,917	1,853	1,559
Tin, including tinplate .....	.....	.....	1
Zinc.....	5	.....	5
Other and unclassified	8	37	6
Other agricultural commodities	86	125	240
Beans, edible	2	67	120
Cotton, raw	62	45	112
Molasses.....	15	11	8
Oilseeds	1	2	.....
Peas, dry	6	.....	.....
Petroleum and products	2,921	1,836	1,719
Diesel oil	269	273	37
Fuel oil, residual	383	93	.....
Gasoline	381	55	17
Jet fuel	448	289	287
Kerosene	194	66	38
Liquefied gas	535	319	373
Lubricating oil	129	104	140
Petroleum coke	575	591	768
Other and unclassified	7	46	59
Miscellaneous	7,934	7,229	6,935
Carbon black	38	21	56
Cement .....	.....	4	.....
Clay, fire and china	542	535	456
Flour, wheat	37	.....	30
Groceries, miscellaneous	31	43	3
Marble and stone	35	16	11
Oil, vegetable	64	67	61
Paper and paper products	473	292	291
Porcelainware	5	.....	.....
Resin	13	14	16
Rubber, manufactured .....	.....	6	5
Tallow	2	.....	2
Wax, paraffin .....	.....	8	10
Container cargo	6,495	6,117	5,730
All other and unclassified	199	106	264
Total	59,007	52,066	52,459
EAST COAST CANADA TO WEST COAST UNITED STATES:			
Canned and refrigerated foods, miscellaneous .....	.....	1	.....
Lumber and products, miscellaneous .....	.....	.....	4
Miscellaneous	49	53	13
Container cargo	45	53	13

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST CANADA TO WEST COAST UNITED STATES—Continued			
Miscellaneous—Continued			
All other and unclassified	4	.....	.....
Total	<u>49</u>	<u>54</u>	<u>17</u>
EAST COAST CANADA TO WEST COAST CENTRAL AMERICA:			
Canned and refrigerated foods, miscellaneous	4	2	1
Coal and coke (excluding petroleum coke)	<u>33</u>	.....	.....
Coal	<u>33</u>	.....	.....
Grains	<u>14</u>	8	2
Corn	<u>5</u>	8	2
Wheat	<u>9</u>	.....	.....
Lumber and products, miscellaneous .....	.....	4	.....
Machinery and equipment, miscellaneous .....	.....	.....	1
Manufactures of iron and steel	<u>30</u>	.....	.....
Wires, bars and rods	<u>30</u>	.....	.....
Nitrates, phosphates and potash	<u>14</u>	6	.....
Other agricultural commodities, miscellaneous	<u>1</u>	1	1
Miscellaneous	<u>13</u>	8	11
Beans, edible .....	.....	.....	1
Flour, wheat	<u>2</u>	2	3
Oil, vegetable	<u>2</u>	1	.....
Paper and paper products	<u>9</u>	4	5
All other and unclassified .....	.....	<u>1</u>	2
Total	<u>109</u>	<u>28</u>	<u>16</u>
EAST COAST CANADA TO WEST COAST SOUTH AMERICA:			
Canned and refrigerated foods, miscellaneous	3	1	2
Coal and coke (excluding petroleum coke)	<u>77</u>	<u>98</u>	.....
Coal	<u>77</u>	<u>98</u>	.....
Grain	<u>74</u>	.....	.....
Wheat	<u>73</u>	.....	.....
All other and unclassified	<u>1</u>	.....	.....
Lumber and products .....	.....	.....	1
Pulpwood .....	.....	.....	1
Machinery and equipment, miscellaneous	<u>1</u>	2	.....
Manufactures of iron and steel	<u>20</u>	<u>19</u>	<u>17</u>
Angles, shapes and sections .....	.....	.....	1
Plates, sheets and coils .....	.....	4	.....
Wires, bars and rods	<u>14</u>	15	15
All other and unclassified	<u>6</u>	.....	1
Minerals, miscellaneous	<u>10</u>	4	7
Asbestos	<u>10</u>	4	7
Nitrates, phosphates and potash	<u>37</u>	<u>73</u>	<u>19</u>
Phosphates	<u>16</u>	10	.....
Potash	<u>21</u>	63	19
Ores and metals, miscellaneous .....	.....	.....	22
Other agricultural commodities, miscellaneous	<u>1</u>	.....	.....
Miscellaneous	<u>24</u>	<u>28</u>	<u>34</u>
Flour, wheat	<u>10</u>	9	8
Paper and paper products	<u>11</u>	15	16

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST CANADA TO WEST COAST SOUTH AMERICA—Continued			
Miscellaneous—Continued			
Container cargo .....	.....	3	1
All other and unclassified .....	.....	3	9
Total	<u>247</u>	<u>227</u>	<u>102</u>
EAST COAST CANADA TO OCEANIA:			
Canned and refrigerated foods, miscellaneous	3	14	11
Lumber and products, miscellaneous .....	.....	1	.....
Manufactures of iron and steel, miscellaneous .....	.....	7	10
Nitrates, phosphates and potash	49	30	.....
Phosphates	17	.....	.....
Potash	32	30	.....
Ores and metals, miscellaneous .....	.....	.....	55
Miscellaneous	85	154	196
Paper and paper products .....	.....	32	30
Container cargo	82	122	166
All other and unclassified	3	.....	.....
Total	<u>137</u>	<u>206</u>	<u>273</u>
EAST COAST CANADA TO ASIA:			
Canned and refrigerated foods	49	59	49
Refrigerated foods	49	59	49
Fish	39	50	39
Other and unclassified	10	9	10
Chemicals and petroleum chemicals, miscellaneous .....	.....	7	.....
Grains	152	116	276
Sorghum	8	.....	.....
Soybeans	37	10	35
Wheat	107	106	241
Lumber and products	155	184	282
Boards and planks .....	.....	.....	18
Plywood, veneers, composition board	7	.....	.....
Pulpwood	142	165	247
Other and unclassified	6	19	17
Machinery and equipment, miscellaneous	5	7	8
Manufactures of iron and steel	714	383	448
Angles, shapes and sections	48	37	.....
Plates, sheets and coils	435	154	342
Tubes, pipes and fittings	42	.....	22
Wire, bars and rods	87	59	33
Other and unclassified	102	133	51
Minerals, miscellaneous	6	.....	4
Nitrates, phosphates and potash	212	96	.....
Potash	212	96	.....
Ores and metals	135	225	238
Ores	51	77	31
Copper	5	25	5
Manganese .....	.....	.....	2
Zinc	6	10	24
Other and unclassified	40	42	.....
Metals	84	148	207
Aluminum	8	.....	3

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST CANADA TO ASIA—Continued			
Metals—Continued			
Copper	1	.....	.....
Lead	1	1	.....
Scrap	73	146	202
Zinc	2	.....	.....
Other and unclassified .....	.....	.....	2
Petroleum and products	81	126	.....
Diesel oil	28	.....	.....
Fuel oil, residual .....	.....	93	.....
Gasoline	26	.....	.....
Jet fuel	27	25	.....
Lubricating oil .....	.....	8	.....
Miscellaneous	456	449	468
Clay, fire and china	22	.....	.....
Marble and stone	51	42	74
Paper and paper products	104	166	185
Slag, clinkers and dross	46	30	10
Container cargo	217	209	197
All other and unclassified	16	2	2
Total	<u>1,965</u>	<u>1,653</u>	<u>1,773</u>
EAST COAST CENTRAL AMERICA TO WEST COAST			
UNITED STATES:			
Petroleum and products	87	.....	49
Diesel oil	4	.....	.....
Fuel oil, residual	83	.....	49
Miscellaneous .....	.....	64	18
Cement .....	.....	64	18
Total	<u>87</u>	<u>64</u>	<u>68</u>
EAST COAST CENTRAL AMERICA TO WEST COAST			
CENTRAL AMERICA:			
Lumber and products, miscellaneous	20	.....	.....
Manufactures of iron and steel, miscellaneous .....	.....	2	.....
Nitrates, phosphates and potash	199	338	427
Ammonium compounds	22	41	51
Phosphates	9	28	49
Fertilizers, unclassified	168	269	327
Petroleum and products	671	872	856
Asphalt	19	22	21
Crude oil	278	435	382
Diesel oil	2	90	20
Fuel oil, residual .....	.....	19	.....
Gasoline	55	64	34
Liquefied gas	317	226	399
Other and unclassified .....	.....	16	.....
Miscellaneous	2	14	1
Cement .....	.....	13	.....
Container cargo .....	.....	1	.....
All other and unclassified	2	.....	1
Total	<u>892</u>	<u>1,226</u>	<u>1,284</u>

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST CENTRAL AMERICA TO WEST COAST			
SOUTH AMERICA:			
Chemicals and petroleum chemicals	4	3	8
Caustic soda .....	.....	.....	2
Chemicals, unclassified	4	3	5
Petroleum chemicals, miscellaneous .....	.....	.....	1
Machinery and equipment, miscellaneous .....	.....	2	1
Manufactures of iron and steel	6	7	8
Angles, shapes and sections	1	.....	.....
Plates, sheets and coils .....	.....	.....	1
Tubes, pipes and fittings	5	6	7
Wire, bars and rods .....	.....	1	.....
Minerals, miscellaneous	1	1	.....
Nitrates, phosphates and potash	57	90	71
Phosphates	1	4	1
Fertilizers, miscellaneous	56	86	70
Ores and metals	6	6	11
Ores	6	3	8
Manganese	2	2	3
Other and unclassified	4	1	5
Metals .....	.....	3	3
Scrap .....	.....	3	.....
Zinc .....	.....	.....	3
Other agricultural commodities	14	2	7
Rubber, raw	1	2	2
Sugar	13	.....	5
Petroleum and products	125	268	158
Asphalt .....	.....	.....	1
Diesel oil	28	140	65
Fuel oil, residual .....	.....	32	1
Gasoline	3	.....	.....
Jet fuel .....	.....	9	.....
Liquefied gas	94	87	92
Miscellaneous	90	69	52
Paper and paper products	11	1	4
Resin	1	1	1
Rubber, manufactured	4	3	2
Textiles	1	1	1
Container cargo	50	52	34
All other and unclassified	23	11	10
Total	<u>303</u>	<u>450</u>	<u>318</u>
EAST COAST CENTRAL AMERICA TO BALBOA, R.P.:			
Lumber and products, miscellaneous .....	.....	1	.....
Petroleum and products	122	121	250
Diesel oil	26	25	63
Fuel, oil, residual	97	91	187
Jet fuel .....	.....	5	.....
Total	<u>122</u>	<u>122</u>	<u>250</u>
EAST COAST CENTRAL AMERICA TO ASIA:			
Canned and refrigerated foods, miscellaneous	4	3	.....
Chemicals and petroleum chemicals	36	27	45
Chemicals, unclassified	31	27	39

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST CENTRAL AMERICA TO ASIA—			
Continued			
Chemicals and petroleum chemicals—Continued			
Petroleum chemicals, miscellaneous	5	.....	6
Lumber and products, miscellaneous .....	.....	.....	1
Machinery and equipment, miscellaneous	2	.....	.....
Manufactures of iron and steel	34	86	132
Angles, shapes and sections .....	.....	3	9
Plates, sheets and coils	2	42	27
Tubes, pipes and fittings	32	36	52
Wire, bars and rods .....	.....	.....	7
Other and unclassified .....	.....	5	37
Nitrates, phosphates and potash	213	124	.....
Fertilizers, unclassified	213	124	.....
Ores and metals	9	2	48
Ores	4	2	30
Iron .....	.....	.....	5
Manganese	4	2	5
Other and unclassified .....	.....	.....	20
Metals	5	.....	18
Iron	5	.....	5
Other and unclassified .....	.....	.....	13
Other agricultural commodities	1	1	20
Cotton, raw	1	.....	.....
Rubber, raw .....	.....	1	.....
Sugar .....	.....	.....	20
Petroleum and products	66	87	10
Diesel oil .....	.....	27	.....
Gasoline	24	.....	.....
Jet fuel	10	.....	.....
Liquefied gas	32	60	10
Miscellaneous	39	74	110
Carbon black .....	.....	.....	1
Fibers, plant .....	.....	.....	1
Resin	30	16	17
Textiles .....	.....	.....	5
Container cargo	2	54	68
All other and unclassified	7	4	18
Total	<u>404</u>	<u>403</u>	<u>366</u>
EAST COAST SOUTH AMERICA TO WEST COAST			
UNITED STATES:			
Canned and refrigerated foods, miscellaneous	2	2	6
Chemicals and petroleum chemicals	48	.....	.....
Chemicals, unclassified	27	.....	.....
Petroleum chemicals, miscellaneous	21	.....	.....
Lumber and products	48	56	54
Boards and planks	2	6	8
Plywood, veneers, composition board	3	6	5
Pulpwood	42	42	39
Other and unclassified	1	2	2
Machinery and equipment, miscellaneous .....	.....	4	1
Manufactures of iron and steel	665	584	494
Angles, shapes and sections .....	.....	.....	6

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST SOUTH AMERICA TO WEST COAST			
UNITED STATES—Continued			
Manufactures of iron and steel—Continued			
Nails, tacks and spikes.....	.....	.....	.....
Plates, sheets and coils.....	599	483	344
Tubes, pipes and fittings.....	6	5	6
Wire, bars and rods.....	13	29	9
Other and unclassified.....	47	66	129
Ores and metals.....	83	68	75
Ores.....	64	66	17
Alumina bauxite.....	11	42	12
Iron.....	53	24	.....
Other and unclassified.....	.....	.....	5
Metals.....	19	2	58
Aluminum.....	.....	2	1
Iron.....	19	.....	54
Other and unclassified.....	.....	.....	3
Other agricultural commodities.....	.....	8	10
Beans, edible.....	.....	1	.....
Cocoa and cacao beans.....	.....	3	2
Coffee.....	.....	4	8
Petroleum and products.....	1,412	786	510
Crude oil.....	422	286	.....
Diesel oil.....	77	.....	88
Fuel oil, residual.....	658	49	171
Gasoline.....	71	329	204
Jet fuel.....	84	122	34
Liquefied gas.....	.....	.....	13
Other and unclassified.....	100	.....	.....
Miscellaneous.....	604	250	122
Bricks and tile.....	.....	1	.....
Cement.....	432	114	18
Marble and stone.....	.....	.....	2
Oil, vegetable.....	34	.....	.....
Paper and paper products.....	3	9	6
Slag, clinkers and dross.....	.....	23	.....
Container cargo.....	127	92	89
All other and unclassified.....	8	11	7
Total.....	2,862	1,758	1,272
EAST COAST SOUTH AMERICA TO WEST COAST			
CANADA:			
Manufactures of iron and steel.....	56	72	108
Angles, shapes and sections.....	.....	.....	5
Plates, sheets and coils.....	20	27	8
Tubes, pipes and fittings.....	13	10	14
Wire, bars and rods.....	20	31	65
Other and unclassified.....	3	4	16
Ores and metals, miscellaneous.....	.....	3	.....
Other agricultural commodities, miscellaneous.....	.....	1	.....
Miscellaneous.....	87	87	55

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST SOUTH AMERICA TO WEST COAST			
CANADA—Continued			
Miscellaneous—Continued			
Bricks and tile .....	.....	1	.....
Cement	38	20	27
Paper and paper products	1	2	2
Slag, clinkers and dross	37	27	.....
Container cargo	8	29	25
All other and unclassified	3	8	1
Total	145	170	174
EAST COAST SOUTH AMERICA TO WEST COAST			
CENTRAL AMERICA:			
Canned and refrigerated foods, miscellaneous	1	.....	3
Chemicals and petroleum chemicals, miscellaneous .....	.....	1	.....
Coal and coke (excluding petroleum coke)	71	.....	.....
Coal	71	.....	.....
Grains .....	.....	.....	14
Soybeans .....	.....	.....	14
Lumber and products	2	.....	.....
Boards and planks	1	.....	.....
Plywood, veneers, composition board	1	.....	.....
Manufactures of iron and steel	175	133	127
Angles, shapes and sections .....	.....	11	1
Plates, sheets and coils	65	36	93
Tubes, pipes and fittings .....	.....	.....	2
Wire, bars and rods	80	18	15
Other and unclassified	30	68	16
Nitrates, phosphates and potash	48	19	17
Ammonium compounds .....	.....	14	.....
Fertilizers, unclassified	48	5	17
Ores and metals	9	20	13
Ores, miscellaneous	3	.....	.....
Metals	6	20	13
Aluminum	2	1	3
Iron .....	.....	18	10
Tin, including tinplate	3	1	.....
Zinc	1	.....	.....
Other agricultural commodities	55	81	19
Oilseeds .....	.....	.....	19
Sugar	55	81	.....
Petroleum and products	1,432	1,552	1,010
Crude oil	1,241	935	704
Diesel oil .....	.....	48	24
Fuel oil, residual .....	.....	493	249
Gasoline	148	30	30
Liquefied gas .....	.....	4	2
Lubricating oil .....	.....	.....	1
Other and unclassified	43	42	.....
Miscellaneous	25	30	22
Bricks and tile .....	.....	1	.....
Glass and glassware .....	.....	1	.....
Oil, vegetable	10	5	5
Paper and paper products .....	.....	1	.....
Resin .....	.....	.....	2

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST SOUTH AMERICA TO WEST COAST			
CENTRAL AMERICA—Continued			
Miscellaneous—Continued			
Container cargo	11	21	4
All other and unclassified	4	1	11
Total	<u>1,818</u>	<u>1,836</u>	<u>1,225</u>
EAST COAST SOUTH AMERICA TO WEST COAST			
SOUTH AMERICA:			
Canned and refrigerated foods, miscellaneous .....	.....	4	.....
Chemicals and petroleum chemicals	21	32	21
Caustic soda	4	.....	.....
Chemicals, unclassified	11	29	15
Petroleum chemicals, miscellaneous	6	3	6
Coal and coke (excluding petroleum coke)	488	152	163
Coal	464	149	155
Coke	24	3	8
Grains	27	1	9
Corn .....	.....	.....	5
Oats	1	1	.....
Rice	21	.....	.....
Soybeans	5	.....	.....
Wheat .....	.....	.....	2
Other and unclassified .....	.....	.....	2
Lumber and products, miscellaneous	3	2	1
Machinery and equipment, miscellaneous	8	8	10
Manufactures of iron and steel	133	134	202
Angles, shapes and sections	3	27	35
Plates, sheets and coils	45	20	46
Tubes, pipes and fittings	10	10	1
Wire, bars and rods	62	66	68
Other and unclassified	13	11	52
Minerals, miscellaneous	28	36	21
Asbestos	1	1	.....
Salt	26	28	17
Soda and sodium compounds	1	1	4
Sulfur .....	.....	6	.....
Nitrates, phosphates and potash	93	127	142
Ammonium compounds	17	33	17
Phosphates	1	3	1
Fertilizers, unclassified	75	91	124
Ores and metals	27	24	20
Ores	14	12	11
Alumina/bauxite	14	11	11
Manganese .....	.....	1	.....
Metals	13	12	9
Aluminun	3	3	1
Iron	5	6	6
Tin, including tinplate	4	1	.....
Zinc .....	.....	.....	1
Other and unclassified	1	2	1
Other agricultural commodities	35	39	1
Cotton, raw	1	1	1
Rubber, raw .....	.....	1	.....
Sugar	34	37	.....

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EAST COAST SOUTH AMERICA TO WEST COAST SOUTH AMERICA—Continued			
Petroleum and products			
Asphalt	2,080	1,198	1,378
Crude oil	1,166	742	859
Diesel oil	180	31	210
Fuel oil, residual	24	.....	.....
Gasoline	361	173	131
Jet fuel	38	.....	79
Liquefied gas	231	204	56
Lubricating oil	80	47	38
Other and unclassified .....	.....	.....	5
Miscellaneous	161	89	97
Bricks and tile	1	.....	.....
Carbon black	40	7	20
Cement .....	.....	.....	3
Flour, wheat .....	.....	1	5
Glass and glassware	2	1	.....
Oil, vegetable .....	.....	.....	1
Paper and paper products	23	8	13
Resin	7	11	6
Rubber, manufactured	1	1	1
Textiles	1	.....	.....
Container cargo	68	39	34
All other and unclassified	18	22	14
Total	<u>3,104</u>	<u>1,845</u>	<u>2,065</u>
EAST COAST SOUTH AMERICA TO BALBOA, R.P.:			
Canned and refrigerated foods, miscellaneous .....	.....	1	.....
Chemicals and petroleum chemicals, miscellaneous .....	.....	.....	1
Manufactures of iron and steel, miscellaneous	1	.....	.....
Petroleum and products	56	3	6
Asphalt .....	.....	2	.....
Fuel oil, residual	46	.....	.....
Gasoline .....	.....	.....	6
Lubricating oil	10	1	.....
Miscellaneous	4	4	5
Oil, vegetable	3	3	2
Container cargo	1	1	3
Total	<u>61</u>	<u>9</u>	<u>12</u>
EAST COAST SOUTH AMERICA TO HAWAII:			
Petroleum and products	114	61	62
Crude oil	17	.....	.....
Diesel oil	6	.....	.....
Jet fuel	60	61	62
Other and unclassified	31	.....	.....
Miscellaneous	173	108	.....
Cement	51	57	.....
Slag, clinkers and dross	121	51	.....
All other and unclassified	1	.....	.....
Total	<u>287</u>	<u>168</u>	<u>62</u>
EAST COAST SOUTH AMERICA TO OCEANIA:			
Ores and metals, miscellaneous	3	3	57

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

			Fiscal year		
			1991	1990	1989
EAST COAST SOUTH AMERICA TO OCEANIA—					
Continued					
Other agricultural commodities, miscellaneous .....	.....	.....			1
Miscellaneous .....	.....	.....	2	7	
Paper and paper products.....	.....	.....			1
Container cargo .....	.....	.....	1	1	
All other and unclassified .....	.....	.....	1	5	
Total .....	.....	3	6	66	
EAST COAST SOUTH AMERICA TO ASIA:					
Canned and refrigerated foods.....	.....	17	55	50	
Canned foods, miscellaneous .....	.....	2	.....	1	
Refrigerated foods .....	.....	15	55	49	
Bananas .....	.....	2	4	8	
Fish.....	.....	13	38	38	
Meat .....	.....		6	.....
Other and unclassified .....	.....		7	3	
Chemicals and petroleum chemicals .....	.....	29	22	.....
Chemicals, unclassified .....	.....	20	22	.....
Petroleum chemicals, miscellaneous .....	.....	9	.....	.....
Coal and coke (excluding petroleum coke) .....	.....	91	52	89	
Coal .....	.....	91	52	89	
Grains.....	.....	25	90	.....
Sorghum .....	.....	25	.....	.....
Soybeans .....	.....		41	.....
Wheat .....	.....		44	.....
Other and unclassified .....	.....		5	.....
Lumber and products .....	.....	43	5	56	
Pulpwood.....	.....	43	5	28	
Other and unclassified .....	.....		.....	28	
Machinery and equipment, miscellaneous .....	.....	2	.....	.....
Manufactures of iron and steel .....	.....	246	453	68	
Angles, shapes and sections .....	.....	5	27	.....
Plates, sheets and coils .....	.....	49	88	33	
Tubes, pipes and fittings .....	.....		3	.....
Wire, bars and rods .....	.....	134	264	20	
Other and unclassified .....	.....	58	71	15	
Nitrates, phosphates and potash .....	.....		149	61	
Fertilizers, unclassified.....	.....		149	61	
Ores and metals .....	.....	841	894	479	
Ores .....	.....	305	294	202	
Alumina/bauxite .....	.....	65	72	56	
Chrome .....	.....	67	.....	11	
Copper .....	.....		10	.....
Iron.....	.....	108	158	54	
Manganese.....	.....	65	39	81	
Other and unclassified .....	.....		15	.....
Metals.....	.....	536	600	277	
Aluminum .....	.....	433	380	266	
Copper .....	.....	3	.....	.....
Iron.....	.....	100	208	.....
Scrap .....	.....		6	1	
Zinc.....	.....		.....	.....	2
Other and unclassified .....	.....		6	8	
Other agricultural commodities .....	.....	4	12	40	

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EAST COAST SOUTH AMERICA TO ASIA—			
Continued			
Other agricultural commodities—Continued			
Beans, edible .....	.....	3	.....
Cocoa and cacao beans	2	2	1
Coffee .....	.....	2	3
Cotton, raw	1	4	.....
Molasses .....	.....	.....	36
Oilseeds .....	.....	1	.....
Wool, raw	1	.....	.....
Petroleum and products	92	194	123
Asphalt	33	.....	.....
Diesel oil .....	.....	68	.....
Gasoline	26	25	27
Jet fuel	29	97	61
Kerosene .....	.....	.....	35
Liquefied gas	4	4	.....
Miscellaneous	180	133	118
Bricks and tile .....	.....	.....	1
Clay, fire and china	110	45	48
Groceries, miscellaneous .....	.....	.....	1
Marble and stone .....	.....	2	1
Paper and paper products	10	2	.....
Resin .....	.....	3	.....
Seeds, excluding oilseeds .....	.....	3	.....
Slag, clinkers and dross	33	.....	.....
Textiles .....	.....	1	.....
Container cargo	11	62	60
All other and unclassified	16	15	7
Total	<u>1,570</u>	<u>2,059</u>	<u>1,086</u>
WEST INDIES TO WEST COAST UNITED STATES:			
Chemicals and petroleum chemicals, miscellaneous	6	.....	.....
Manufactures of iron and steel	14	17	16
Plates, sheets and coils	5	.....	8
Wire, bars and rods	9	17	8
Nitrates, phosphates and potash .....	.....	.....	53
Ores and metals	93	86	22
Ores	53	86	22
Alumina/bauxite	53	86	22
Metals	30	.....	.....
Aluminum	30	.....	.....
Petroleum and products	<u>1,035</u>	<u>647</u>	<u>359</u>
Asphalt	17	.....	.....
Crude oil	46	35	.....
Diesel oil	54	5	98
Fuel oil, residual	775	492	54
Gasoline .....	.....	33	179
Jet fuel .....	.....	28	28
Liquefied gas .....	.....	17	.....
Other and unclassified	143	37	.....
Miscellaneous	16	13	25
Container cargo	14	13	25
All other and unclassified	2	.....	.....
Total	<u>1,164</u>	<u>764</u>	<u>474</u>

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	<i>1991</i>	<i>1990</i>	<i>1989</i>
WEST INDIES TO WEST COAST CENTRAL AMERICA:			
Chemicals and petroleum chemicals, miscellaneous .....	.....	3	4
Machinery and equipment, miscellaneous .....	.....	.....	3
Manufactures of iron and steel	<u>10</u>	<u>.....</u>	<u>7</u>
Angles, shapes and sections .....	.....	.....	3
Nails, tacks and spikes .....	.....	.....	1
Plates, sheets and coils	9	.....	.....
Tubes, pipes and fittings .....	.....	.....	3
Other and unclassified	1	.....	.....
Nitrates, phosphates and potash	<u>32</u>	<u>32</u>	<u>42</u>
Ammonium compounds .....	.....	.....	23
Phosphates .....	.....	.....	1
Fertilizers, unclassified	<u>32</u>	<u>32</u>	<u>18</u>
Other agricultural commodities	<u>49</u>	<u>10</u>	<u>35</u>
Molasses .....	.....	.....	10
Sugar	<u>49</u>	<u>10</u>	<u>25</u>
Petroleum and products	<u>133</u>	<u>199</u>	<u>95</u>
Crude oil	<u>44</u>	<u>17</u>	.....
Diesel oil	<u>33</u>	<u>22</u>	<u>19</u>
Fuel oil, residual .....	.....	<u>151</u>	<u>43</u>
Gasoline	<u>46</u>	<u>8</u>	<u>30</u>
Jet fuel	<u>5</u>	<u>1</u>	<u>3</u>
Liquefied gas	<u>5</u>	.....	.....
Miscellaneous	<u>6</u>	<u>26</u>	<u>15</u>
Glass and glassware	1	1	4
Oil, vegetable .....	.....	<u>5</u>	.....
Paper and paper products .....	.....	<u>2</u>	<u>2</u>
Container cargo	<u>2</u>	<u>17</u>	<u>6</u>
All other and unclassified	<u>3</u>	<u>1</u>	<u>3</u>
Total	<u>230</u>	<u>272</u>	<u>201</u>
WEST INDIES TO WEST COAST SOUTH AMERICA:			
Chemicals and petroleum chemicals, miscellaneous .....	.....	2	.....
Manufactures of iron and steel	<u>16</u>	.....	.....
Plates, sheets and coils	<u>10</u>	.....	.....
Wire, bars and rods	<u>16</u>	<u>6</u>	.....
All other and unclassified .....	.....	<u>2</u>	.....
Nitrates, phosphates and potash	<u>38</u>	<u>63</u>	<u>53</u>
Ammonium compounds .....	.....	.....	8
Fertilizers, unclassified	<u>38</u>	<u>63</u>	<u>45</u>
Ores and metals .....	.....	<u>25</u>	<u>32</u>
Metals, miscellaneous .....	.....	<u>25</u>	<u>32</u>
Other agricultural commodities, miscellaneous .....	.....	.....	<u>32</u>
Petroleum and products	<u>339</u>	<u>446</u>	<u>363</u>
Crude oil .....	.....	<u>105</u>	.....
Diesel oil	<u>91</u>	<u>76</u>	<u>138</u>
Fuel oil, residual	<u>23</u>	<u>4</u>	<u>13</u>
Gasoline	<u>170</u>	<u>168</u>	<u>124</u>
Jet fuel	<u>13</u>	<u>27</u>	<u>14</u>
Liquefied gas	<u>11</u>	.....	<u>20</u>
Lubricating oil	<u>31</u>	<u>66</u>	<u>54</u>
Miscellaneous	<u>5</u>	<u>10</u>	<u>8</u>
Marble and stone .....	.....	.....	1
Oil, coconut	1	.....	.....

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

		<i>Fiscal year</i>		
		1991	1990	1989
WEST INDIES TO WEST COAST SOUTH AMERICA—				
Continued				
Miscellaneous—Continued				
Paper and paper products .....	.....		1	4
Container cargo .....	.....		5	.....
All other and unclassified	4	4	4	3
Total	<u>424</u>	<u>555</u>	<u>487</u>	
WEST INDIES TO BALBOA, R.P.:				
Minerals, miscellaneous .....	.....	.....	.....	8
Ores and metals	3	.....	.....	.....
Ores, miscellaneous	3	.....	.....	.....
Petroleum and products	61	22	.....	2
Fuel oil, residual	30	20	.....	.....
Gasoline	21	.....	.....	1
Lubricating oil	10	2	.....	1
Miscellaneous	1	.....	.....	1
All other and unclassified	1	.....	.....	1
Total	<u>65</u>	<u>22</u>	<u>11</u>	
WEST INDIES TO HAWAII:				
Petroleum and products	33	3	.....	.....
Diesel oil .....	.....	3	.....	.....
Jet fuel	33	.....	.....	.....
Total	<u>33</u>	<u>3</u>	<u>.....</u>	
WEST INDIES TO OCEANIA:				
Ores and metals, miscellaneous .....	.....	.....	.....	2
Other agricultural commodities	38	.....	.....	.....
Sugar	38	.....	.....	.....
Petroleum and products .....	.....	.....	.....	29
Gasoline .....	.....	.....	.....	29
Miscellaneous	4	4	.....	3
Container cargo	4	4	.....	3
Total	<u>42</u>	<u>4</u>	<u>33</u>	
WEST INDIES TO ASIA:				
Canned and refrigerated foods	32	37	35	
Refrigerated foods	32	37	35	
Fish	23	25	25	
Fruit, excluding bananas	8	11	9	
Other and unclassified	1	1	1	
Chemicals and petroleum chemicals	91	145	179	
Chemicals, unclassified	19	7	4	
Petroleum chemicals, miscellaneous	72	138	175	
Machinery and equipment, miscellaneous .....	.....	1	1	
Manufactures of iron and steel	121	70	102	
Plates, sheets and coils	55	8	51	
Wire, bars and rods	55	59	51	
Other and unclassified	11	3	.....
Nitrates, phosphates and potash	34	24	42	
Ammonium compounds	13	.....	.....

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
WEST INDIES TO ASIA—Continued			
Nitrates, phosphates and potash—Continued			
Phosphates.....	.....	.....	42
Fertilizers, unclassified.....	21	24	.....
Ores and metals.....	14	.....	22
Ores.....	.....	.....	2
Other and unclassified.....	.....	.....	2
Metals.....	14	.....	20
Aluminum.....	14	.....	.....
Scrap.....	.....	.....	19
Other and unclassified.....	.....	.....	1
Other agricultural commodities.....	1,244	1,223	1,350
Cocoa and cacao beans.....	.....	.....	1
Sugar.....	1,244	1,223	1,349
Petroleum and products.....	3	171	67
Diesel oil.....	.....	34	.....
Gasoline.....	.....	65	.....
Jet fuel.....	.....	32	66
Lubricating oil.....	3	6	1
Other and unclassified.....	.....	34	.....
Miscellaneous.....	150	142	168
Liquors and wines.....	.....	1	.....
Oil, vegetable.....	19	.....	.....
Container cargo.....	129	141	167
All other and unclassified.....	2	.....	1
Total.....	<u>1,689</u>	<u>1,814</u>	<u>1,965</u>
EUROPE TO WEST COAST UNITED STATES:			
Canned and refrigerated foods.....	69	60	59
Canned foods.....	.....	1	2
Fruit.....	.....	1	2
Refrigerated foods, miscellaneous.....	69	59	57
Chemicals and petroleum chemicals.....	43	30	39
Caustic soda.....	1	.....	4
Chemicals, unclassified.....	42	30	35
Grain.....	<u>159</u>	.....	.....
Barley.....	77	.....	.....
Oats.....	82	.....	.....
Lumber and products, miscellaneous.....	2	8	3
Machinery and equipment.....	<u>121</u>	<u>185</u>	<u>171</u>
Agricultural machinery and implements.....	2	1	3
Automobiles, trucks, accessories and parts.....	115	172	162
Construction machinery and equipment.....	2	3	2
Electrical machinery and apparatus.....	2	1	2
Other and unclassified.....	.....	8	2
Manufactures of iron and steel.....	<u>535</u>	<u>593</u>	<u>630</u>
Angles, shapes and sections.....	19	23	44
Nails, tacks and spikes.....	.....	1	.....
Plates, sheets and coils.....	436	381	452
Tubes, pipes and fittings.....	24	20	4
Wires, bars and rods.....	27	92	102
Other and unclassified.....	29	76	28
Nitrates, phosphates and potash.....	<u>250</u>	<u>399</u>	<u>393</u>
Ammonium compounds.....	<u>52</u>	<u>79</u>	<u>80</u>

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EUROPE TO WEST COAST UNITED STATES—			
Continued			
Nitrates, phosphates and potash—Continued			
Nitrate of soda	7	.....	42
Phosphates.....	.....	15	.....
Potash .....	.....	10	.....
Fertilizers, unclassified.....	191	295	271
Ores and metals	6	9	13
Ores	5	.....	5
Manganese.....	5	.....	.....
Other and unclassified .....	.....	.....	5
Metals.....	1	9	8
Aluminum .....	.....	2	2
Iron.....	.....	7	.....
Tin, including tinplate	1	.....	1
Other and unclassified .....	.....	.....	5
Other agricultural commodities, miscellaneous .....	.....	2	4
Petroleum and products	96	387	230
Asphalt .....	.....	.....	4
Fuel oil, residual.....	39	.....	37
Gasoline	57	238	147
Jet fuel .....	.....	36	.....
Other and unclassified .....	.....	113	42
Miscellaneous	1,915	1,984	1,817
Bricks and tile	3	2	8
Cement	426	230	130
Clay, fire and china .....	.....	.....	2
Glass and glassware .....	.....	.....	1
Groceries, miscellaneous .....	.....	2	.....
Liquors and wines	1	2	4
Marble and stone	5	5	7
Oil, vegetable.....	20	17	11
Paper and paper products.....	33	64	77
Rubber, manufactured .....	.....	.....	1
Container cargo	1,385	1,608	1,561
All other and unclassified	42	54	15
Total	<u>3,196</u>	<u>3,657</u>	<u>3,359</u>
EUROPE TO WEST COAST CANADA:			
Canned and refrigerated foods	12	9	9
Canned foods, miscellaneous .....	.....	.....	1
Refrigerated foods, miscellaneous	12	9	8
Lumber and products, miscellaneous .....	.....	1	.....
Machinery and equipment	11	14	16
Agricultural machinery and implements	1	.....	.....
Automobiles, trucks, accessories and parts	10	11	15
Construction machinery and equipment .....	.....	2	1
Other and unclassified .....	.....	1	.....
Manufactures of iron and steel	97	115	175
Angles, shapes and sections	14	5	21
Plates, sheets and coils	60	67	78
Tubes, pipes and fittings	7	6	9
Wire, bars and rods	12	25	33
Other and unclassified	4	12	34
Nitrates, phosphates and potash .....	.....	<u>17</u>	.....

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EUROPE TO WEST COAST CANADA—Continued			
Nitrates, phosphates and potash—Continued			
Fertilizers, unclassified.....	17	.....	.....
Ores and metals.....	87	75	114
Ores, miscellaneous.....	87	75	111
Metals.....	.....	.....	3
Aluminum.....	.....	.....	3
Petroleum and products.....	6	.....	.....
Lubricating oil.....	6	.....	.....
Miscellaneous.....	169	186	209
Bricks and tile.....	.....	.....	1
Clay, fire and china.....	.....	.....	1
Marble and stone.....	1	1	.....
Paper and paper products.....	.....	1	.....
Container cargo.....	164	175	203
All other and unclassified.....	4	9	4
Total.....	<u>382</u>	<u>417</u>	<u>523</u>
EUROPE TO WEST COAST CENTRAL AMERICA:			
Canned and refrigerated foods.....	6	11	15
Canned foods.....	5	7	6
Milk.....	4	3	4
Vegetables, canned.....	.....	.....	1
Canned food, miscellaneous.....	1	4	1
Refrigerated food.....	1	4	9
Dairy products.....	1	.....	5
Fish.....	.....	.....	1
Meat.....	.....	.....	1
Other and unclassified.....	.....	4	2
Chemicals and petroleum chemicals.....	14	25	14
Caustic soda.....	1	2	1
Chemicals, unclassified.....	13	20	10
Petroleum chemicals, miscellaneous.....	.....	3	3
Grains.....	76	52	80
Barley.....	30	2	1
Rice.....	30	5	17
Sorghum.....	2	.....	1
Wheat.....	8	41	48
Other and unclassified.....	6	4	13
Lumber and products, miscellaneous.....	.....	2	.....
Machinery and equipment.....	8	20	33
Agricultural machinery and implements.....	2	2	4
Automobiles, trucks, accessories and parts.....	4	12	23
Construction machinery and equipment.....	1	4	4
Electrical machinery and apparatus.....	1	1	1
Other and unclassified.....	.....	1	1
Manufactures of iron and steel.....	45	67	85
Angles, shapes and sections.....	.....	1	4
Plates, sheets and coils.....	17	29	24
Tubes, pipes and fittings.....	.....	1	25
Wire, bars and rods.....	26	22	30
Other and unclassified.....	2	14	2
Minerals, miscellaneous.....	2	3	3
Asbestos.....	2	2	.....

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

		Fiscal year		
		1991	1990	1989
EUROPE TO WEST COAST CENTRAL AMERICA—				
Continued				
Minerals, miscellaneous—Continued				
Soda and sodium compounds	.....	1	2	
Sulfur	.....	1	1	
Nitrates, phosphates and potash	342	306	470	
Ammonium compounds	198	41	40	
Nitrate of soda	10	.....	.....
Potash	7	.....	13	
Fertilizers, unclassified	127	265	417	
Ores and metals, miscellaneous	.....	8	6	
Other agricultural commodities	181	141	13	
Beans, edible	.....	.....	1	
Cotton, raw	2	.....	.....
Oilseeds	91	90	11	
Sugar	88	51	1	
Petroleum and products	.....	32	177	
Crude oil	.....	.....	120	
Diesel oil	.....	13	29	
Fuel oil, residual	.....	6	5	
Gasoline	.....	.....	16	
Jet fuel	.....	1	2	
Liquefied gas	.....	3	.....
Lubricating oil	.....	9	5	
Miscellaneous	54	110	153	
Cement	.....	.....	2	
Fibers, plant	.....	.....	2	
Flour, wheat	3	4	5	
Glass and glassware	.....	2	1	
Groceries, miscellaneous	3	1	.....
Liquors and wines	.....	2	.....
Marble and stone	.....	2	.....
Oil, vegetable	1	2	4	
Paper and paper products	3	24	19	
Resin	.....	1	.....
Rubber, manufactured	.....	1	2	
Seeds, excluding oilseeds	.....	.....	2	
Tallow	.....	1	3	
Textiles	.....	1	2	
Wax, paraffin	1	3	1	
Container cargo	30	39	69	
All other and unclassified	13	27	41	
Total	728	777	1,047	
EUROPE TO WEST COAST SOUTH AMERICA:				
Canned and refrigerated foods	11	10	23	
Canned foods	4	6	16	
Fish	.....	1	.....
Milk	4	5	16	
Refrigerated foods	7	4	7	
Dairy products	.....	1	3	
Fish	5	.....	.....
Other and unclassified	2	3	4	
Chemicals and petroleum chemicals	7.3	6.3	34	
Caustic soda	3	5	12	

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EUROPE TO WEST COAST SOUTH AMERICA—			
Continued			
Chemicals and petroleum chemicals—Continued			
Chemicals, unclassified	69	32	20
Petroleum chemicals, miscellaneous	1	26	2
Grains.....	<u>40</u>	<u>43</u>	<u>87</u>
Barley	2	8	4
Oats .....	.....	.....	3
Rice	4	2	.....
Sorghum .....	.....	5	.....
Wheat	29	17	71
Other and unclassified	5	11	9
Machinery and equipment	<u>45</u>	<u>69</u>	<u>46</u>
Agricultural machinery and implements	5	10	7
Automobiles, trucks, accessories and parts	17	21	18
Construction machinery and equipment	11	26	11
Electrical machinery and apparatus	8	6	5
Other and unclassified	4	6	5
Manufactures of iron and steel	<u>129</u>	<u>118</u>	<u>92</u>
Angles, shapes and sections	5	7	7
Nails, tacks and spikes	6	.....	2
Plates, sheets and coils	69	78	55
Tubes, pipes and fittings	10	8	7
Wire, bars and rods	36	11	20
Other and unclassified	3	14	1
Minerals, miscellaneous	<u>22</u>	<u>23</u>	<u>26</u>
Asbestos	6	.....	.....
Borax	1	1	1
Infusorial earth	2	.....	.....
Soda and sodium compounds	13	21	25
Sulfur .....	.....	1	.....
Nitrates, phosphates and potash	<u>362</u>	<u>452</u>	<u>391</u>
Ammonium compounds	22	44	42
Nitrate of soda	2	2	.....
Phosphates	6	8	21
Potash	87	27	21
Fertilizers, unclassified	245	371	307
Ores and metals	<u>15</u>	<u>19</u>	<u>61</u>
Ores	<u>7</u>	<u>6</u>	<u>36</u>
Chrome	6	6	4
Manganese	1	.....	.....
Other and unclassified .....	.....	.....	32
Metals	<u>8</u>	<u>13</u>	<u>25</u>
Copper .....	.....	.....	1
Iron	3	6	4
Tin, including tinplate	5	6	16
Zinc .....	.....	1	3
Other and unclassified .....	.....	.....	1
Other agricultural commodities	<u>29</u>	<u>60</u>	<u>41</u>
Molasses	2	2	1
Sugar	27	58	40
Petroleum and products	<u>179</u>	<u>425</u>	<u>152</u>
Asphalt .....	.....	.....	3
Diesel oil	64	146	77
Fuel oil, residual	36	118	44

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

		<i>Fiscal year</i>		
		1991	1990	1989
EUROPE TO WEST COAST SOUTH AMERICA—				
Continued				
Petroleum and products—Continued				
Gasoline			87	2
Jet fuel	41	22		
Liquefied gas			18	
Lubricating oil	36	25	25	
Other and unclassified	2	9	1	
Miscellaneous	810	811	760	
Bricks and tile		1	4	13
Cement		1	1	1
Clay, fire and china			1	
Fibers, plant		1	1	2
Flour, wheat		45	46	33
Glass and glassware			2	2
Groceries, miscellaneous		4	2	3
Oil, vegetable			4	1
Paper and paper products		46	62	52
Resin		1	1	1
Rubber, manufactured		1		1
Textiles		3	1	1
Wax, paraffin		2	3	4
Container cargo	631	568	563	
All other and unclassified	74	115	83	
Total	1,715	2,093	1,711	
EUROPE TO OCEANIA:				
Canned and refrigerated foods		11	13	18
Canned foods, miscellaneous				1
Refrigerated food		11	13	17
Meat			1	2
Other and unclassified		11	12	15
Chemicals and petroleum chemicals		127	96	144
Caustic soda		34	42	61
Chemicals, unclassified		88	50	65
Petroleum chemicals, miscellaneous		5	4	18
Grains		2	2	12
Corn				1
Soybeans				1
Wheat		2	2	10
Lumber and products		1	4	4
Boards and planks		1		
Pulpwood			4	
Other and unclassified				4
Machinery and equipment		27	29	23
Agricultural machinery and implements		3	3	2
Automobiles, trucks, accessories and parts		12	21	14
Construction machinery and equipment		7	3	4
Electrical machinery and apparatus		4	2	3
Other and unclassified		1		
Manufactures of iron and steel		57	55	54
Angles, shapes and sections		5	9	4
Nails, tacks and spikes				1
Plates, sheets and coils		16	14	14
Tubes, pipes and fittings		13	9	11

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
EUROPE TO OCEANIA—Continued			
Manufactures of iron and steel—Continued			
Wire, bars and rods	13	20	14
Other and unclassified	10	3	10
Minerals, miscellaneous	7	7	6
Salt	3	4	4
Soda and sodium compounds	4	3	2
Nitrates, phosphates and potash	46	36	49
Ammonium compounds	10	16	4
Nitrate of soda		5	.....
Phosphates		5	1
Potash	8	7	26
Fertilizers, unclassified	28	3	18
Ores and metals	22	28	2
Ores	20	8	.....
Lead		8	1
Other and unclassified	20	.....	.....
Metals	2	20	2
Iron		7	1
Lead		11	.....
Other and unclassified	2	2	1
Other agricultural commodities	2	2	2
Oilseeds	1	1	.....
Sugar	1	1	2
Petroleum and products	1	40	10
Asphalt .....		.....	1
Liquefied gas	1	9	.....
Lubricating oil		5	9
Petroleum coke		24	.....
Other and unclassified		2	.....
Miscellaneous	677	702	717
Bricks and tile	3	1	1
Cement		5	6
Flour, wheat	15	15	15
Glass and glassware		1	1
Liquors and wines		1	1
Oil, vegetable	11	12	13
Paper and paper products	9	11	7
Slag, clinkers and dross	2	.....	.....
Textiles		1	.....
Wax, paraffin .....		.....	1
Container cargo	583	601	618
All other and unclassified	54	54	54
Total	<u>980</u>	<u>1,014</u>	<u>1,041</u>
EUROPE TO ASIA:			
Canned and refrigerated foods	108	59	35
Canned foods, miscellaneous .....		.....	2
Refrigerated foods	108	59	33
Fish	92	56	31
Fruit, excluding bananas	1	.....	.....
Other and unclassified	15	3	2
Chemicals and petroleum chemicals	205	152	210
Caustic soda	6	5	21

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
EUROPE TO ASIA—Continued			
Chemicals and petroleum chemicals—Continued			
Chemicals, unclassified	159	128	136
Petroleum chemicals, miscellaneous	40	19	53
Grain	10	.....	.....
Wheat	10	.....	.....
Lumber and products	11	5	7
Pulpwood	7	5	7
Other and unclassified	4	.....	.....
Machinery and equipment	17	14	15
Automobiles, trucks, accessories and parts	16	12	14
Construction machinery and equipment	1	1	.....
Other and unclassified .....	.....	1	1
Manufactures of iron and steel	25	.....	8
Angles, shapes and sections .....	.....	.....	4
Plates, sheets and coils	24	.....	2
Tubes, pipes and fittings	1	.....	.....
Wires, bars and rods .....	.....	.....	2
Nitrates, phosphates and potash	71	30	24
Nitrate of soda	1	.....	.....
Potash	46	30	24
Fertilizers, unclassified	24	.....	.....
Ores and metals	28	47	17
Ores, miscellaneous .....	.....	.....	3
Metals	28	47	14
Iron .....	.....	31	.....
Scrap .....	.....	16	.....
Zinc .....	.....	.....	2
Other and unclassified	28	.....	12
Petroleum and products	16	3	8
Jet fuel	1	.....	.....
Liquefied gas	6	.....	.....
Lubricating oil	9	3	8
Miscellaneous	163	122	168
Bricks and tile	4	.....	.....
Groceries, miscellaneous .....	.....	1	.....
Marble and stone	2	.....	4
Oil, vegetable	1	2	1
Paper and paper products	23	17	9
Container cargo	114	89	145
All other and unclassified	19	13	9
Total	<u>654</u>	<u>433</u>	<u>492</u>
AFRICA TO WEST COAST UNITED STATES:			
Machinery and equipment, miscellaneous .....	.....	1	.....
Manufactures of iron and steel, miscellaneous .....	.....	11	.....
Ores and metals	12	21	15
Ores	12	21	15
Alumina bauxite ore .....	.....	5	.....
Manganese ore .....	.....	.....	4
Other and unclassified	12	21	6
Other agricultural commodities	18	.....	.....
Sugar	18	.....	.....
Petroleum and products .....	.....	54	.....

Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued

[Thousands of long tons]

		Fiscal year		
		1991	1990	1989
AFRICA TO WEST COAST UNITED STATES—				
Continued				
Petroleum and products—Continued				
Fuel oil, residual.....		54		
Miscellaneous		57		5
Cement		34		
Marble and stone		1		1
Slag, clinkers and dross.....		15		
Container cargo		7		3
All other and unclassified				1
Total		30	145	20
AFRICA TO WEST COAST CANADA:				
Nitrates, phosphates and potash		726	712	952
Phosphates.....		726	712	952
Miscellaneous			1	3
Groceries, miscellaneous				1
Container cargo			1	2
Total		726	713	956
AFRICA TO WEST COAST CENTRAL AMERICA:				
Grains, miscellaneous.....		1	14	
Nitrates, phosphates and potash		487	149	305
Phosphates.....		473	149	305
Fertilizers, unclassified.....		14		
Miscellaneous			1	1
Container cargo			1	1
Total		487	164	306
AFRICA TO WEST COAST SOUTH AMERICA:				
Chemicals and petroleum chemicals, miscellaneous		12		7
Grains.....		14		
Corn		14		
Manufactures of iron and steel		18		35
Angles, shapes and sections				1
Plates, sheets and coils		1		2
Wires, bars and rods		17		3
Other and unclassified				29
Nitrates, phosphates and potash		56	16	23
Phosphates.....		4		
Fertilizers, unclassified.....		52	16	23
Petroleum and products				42
Liquefied gas				42
Miscellaneous		2	3	2
Paper and paper products.....		2	2	1
Container cargo				1
Total		76	45	110
AFRICA TO OCEANIA:				
Chemicals and petroleum chemicals, miscellaneous				4
Nitrates, phosphates and potash		145	168	161
Phosphates.....		118	168	161
Fertilizers, unclassified.....		27		

**Table 10.—Important Commodity Shipments over Principal Trade Routes
Atlantic to Pacific—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	<i>1991</i>	<i>1990</i>	<i>1989</i>
AFRICA TO OCEANIA—Continued			
Miscellaneous	18	.....	1
Container cargo	17	.....	1
All other and unclassified	1	.....	.....
Total	<u>163</u>	<u>168</u>	<u>166</u>
AFRICA TO ASIA:			
Canned and refrigerated foods	62	31	29
Fish, refrigerated	62	31	29
Nitrates, phosphates and potash	25	.....	.....
Phosphates	25	.....	.....
Ores and metals, miscellaneous .....	.....	40	.....
Other agricultural commodities, miscellaneous .....	.....	.....	3
Petroleum and products	55	.....	.....
Gasoline	55	.....	.....
Miscellaneous	1	4	6
Container cargo .....	.....	4	6
All other and unclassified	1	.....	.....
Total	<u>143</u>	<u>75</u>	<u>39</u>
ASIA (MIDDLE EAST) TO WEST COAST			
UNITED STATES:			
Canned and refrigerated foods, miscellaneous	1	1	1
Petroleum and products .....	.....	59	95
Gasoline .....	.....	34	95
Other and unclassified .....	.....	25	.....
Miscellaneous	29	38	36
Container cargo	29	38	36
Total	<u>29</u>	<u>98</u>	<u>133</u>
ASIA (MIDDLE EAST) TO WEST COAST			
SOUTH AMERICA:			
Grains	11	.....	.....
Rice	11	.....	.....
Nitrates, phosphates and potash	33	35	.....
Phosphates .....	.....	35	.....
Potash	33	.....	.....
Miscellaneous	33	2	1
Container cargo .....	.....	1	.....
All other and unclassified	33	1	1
Total	<u>77</u>	<u>37</u>	<u>1</u>

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST UNITED STATES TO EAST COAST			
UNITED STATES:			
Canned and refrigerated foods, miscellaneous.....	1	3	2
Chemicals and petroleum chemicals	28	48	75
Caustic soda .....	.....	.....	4
Chemicals, unclassified	28	48	71
Lumber and products	15	23	46
Board and planks .....	.....	23	30
Plywood, veneers, composition board.....	.....	.....	16
Pulpwood.....	15	.....	.....
Machinery and equipment .....	.....	.....	1
Automobiles, trucks, accessories and parts .....	.....	.....	1
Ores and metals	10	.....	.....
Metals.....	10	.....	.....
Lead	10	.....	.....
Other agricultural commodities	9	.....	.....
Molasses.....	9	.....	.....
Petroleum and products	745	633	722
Crude oil	146	123	215
Diesel oil	66	33	49
Fuel oil, residual.....	31	146	121
Gasoline	393	120	89
Jet fuel .....	.....	70	5
Liquefied gas .....	.....	8	2
Lubricating oil	109	122	123
Petroleum coke .....	.....	.....	104
Other and unclassified .....	.....	11	14
Miscellaneous	110	105	71
Liquors and wines .....	.....	4	.....
Oil, vegetable.....	40	21	.....
Paper and paper products.....	.....	.....	8
Container cargo	68	73	63
All other and unclassified	2	7	.....
Total.....	918	814	918

WEST COAST UNITED STATES TO EAST COAST

CANADA:

Canned and refrigerated foods, miscellaneous.....	.....	.....	1
Coal and coke (excluding petroleum coke)	24	24	.....
Coke	24	24	.....
Nitrates, phosphates and potash .....	.....	.....	47
Ores and metals	16	.....	.....
Ores	16	.....	.....
Lead	16	.....	.....
Petroleum and products	138	254	110
Crude oil .....	.....	.....	13
Fuel oil, residual.....	.....	108	.....
Petroleum coke	138	146	97
Miscellaneous	3	3	3
Container cargo	3	3	3
Total.....	181	280	160

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

		<i>Fiscal year</i>		
		1991	1990	1989
WEST COAST UNITED STATES TO EAST COAST CENTRAL AMERICA:				
Grains.....		9	.....	.....
Rice.....		9	.....	.....
Petroleum and products.....		240	.....	23
Gasoline.....		239	.....	.....
Liquefied gas.....		1	.....	.....
Lubricating oil.....		.....	.....	1
Petroleum coke.....		.....	.....	22
Miscellaneous.....		1	1	2
Tallow.....		.....	.....	2
Container cargo.....		1	1	.....
Total.....		<u>250</u>	<u>1</u>	<u>25</u>
WEST COAST UNITED STATES TO EAST COAST SOUTH AMERICA:				
Canned and refrigerated foods.....		6	.....	1
Canned foods.....		.....	.....	1
Milk.....		.....	.....	1
Refrigerated foods.....		6	.....	.....
Fruit, excluding bananas.....		5	.....	.....
Other and unclassified.....		1	.....	.....
Chemicals and petroleum chemicals.....		12	.....	5
Caustic soda.....		10	.....	.....
Chemicals, unclassified.....		2	.....	5
Coal and coke (excluding petroleum coke).....		.....	.....	11
Coke.....		.....	.....	11
Lumber and products.....		10	5	6
Pulpwood.....		10	5	6
Machinery and equipment.....		.....	4	5
Automobiles, trucks, accessories and parts.....		.....	4	.....
Construction machinery and equipment.....		.....	.....	2
Other, unclassified.....		.....	.....	3
Minerals, miscellaneous.....		148	143	65
Borax.....		1	1	10
Soda and sodium compounds.....		90	77	12
Sulfur.....		57	65	43
Nitrates, phosphates, and potash.....		.....	.....	6
Fertilizers, unclassified.....		.....	.....	6
Ores and metals.....		88	31	51
Ores.....		67	31	40
Copper.....		55	31	37
Zinc.....		.....	.....	3
Other and unclassified.....		12	.....	.....
Metals.....		21	.....	11
Copper.....		21	.....	11
Petroleum and products.....		75	136	151
Fuel oil, residual.....		.....	127	53
Gasoline.....		70	.....	.....
Petroleum coke.....		5	9	98
Miscellaneous.....		39	23	23
Paper and paper products.....		8	10	.....
Container cargo.....		30	12	23

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST UNITED STATES TO EAST COAST			
SOUTH AMERICA—Continued			
Miscellaneous—Continued			
All other and unclassified	1	1	.....
Total	<u>378</u>	<u>344</u>	<u>324</u>
WEST COAST UNITED STATES TO WEST INDIES:			
Canned and refrigerated foods, miscellaneous.....	4	.....	.....
Grains.....	<u>15</u>	.....	<u>26</u>
Rice.....	<u>15</u>	.....	<u>26</u>
Petroleum and products	<u>79</u>	<u>373</u>	<u>387</u>
Crude oil .....	.....	.....	<u>62</u>
Diesel oil .....	.....	<u>7</u>	<u>3</u>
Fuel oil, residual.....	<u>17</u>	<u>362</u>	<u>304</u>
Gasoline	<u>62</u>	.....	<u>18</u>
Other and unclassified .....	.....	<u>4</u>	.....
Miscellaneous	<u>42</u>	<u>7</u>	<u>4</u>
Container cargo	<u>42</u>	<u>7</u>	<u>4</u>
Total	<u>140</u>	<u>381</u>	<u>416</u>
WEST COAST UNITED STATES TO EUROPE:			
Canned and refrigerated foods.....	<u>210</u>	<u>207</u>	<u>183</u>
Refrigerated foods	<u>210</u>	<u>207</u>	<u>183</u>
Fish.....	<u>110</u>	<u>107</u>	<u>83</u>
Fruit, excluding bananas.....	<u>36</u>	<u>22</u>	<u>13</u>
Other and unclassified	<u>64</u>	<u>78</u>	<u>87</u>
Chemicals and petroleum chemicals	<u>81</u>	<u>62</u>	<u>92</u>
Caustic soda	<u>18</u>	.....	.....
Chemicals, unclassified	<u>28</u>	<u>35</u>	<u>60</u>
Petroleum chemicals, miscellaneous	<u>35</u>	<u>27</u>	<u>32</u>
Coal and coke (excluding petroleum coke)	<u>175</u>	<u>214</u>	<u>129</u>
Coal	<u>54</u>	<u>103</u>	<u>80</u>
Coke	<u>121</u>	<u>111</u>	<u>49</u>
Grains.....	<u>147</u>	<u>241</u>	<u>185</u>
Rice.....	<u>114</u>	<u>160</u>	<u>152</u>
Wheat	<u>30</u>	<u>81</u>	<u>30</u>
Other and unclassified	<u>3</u>	.....	<u>3</u>
Lumber and products	<u>501</u>	<u>629</u>	<u>629</u>
Boards and planks	<u>119</u>	<u>198</u>	<u>208</u>
Plywood, veneers, composition board.....	<u>43</u>	<u>67</u>	<u>85</u>
Pulpwood	<u>280</u>	<u>341</u>	<u>237</u>
Other and unclassified	<u>59</u>	<u>23</u>	<u>99</u>
Machinery and equipment	<u>6</u>	.....	.....
Automobiles, trucks, accessories and parts	<u>3</u>	.....	.....
Other and unclassified	<u>3</u>	.....	.....
Manufactures of iron and steel	<u>9</u>	.....	<u>28</u>
Plates, sheets and coils	<u>8</u>	.....	<u>18</u>
Tubes, pipes and fittings	<u>1</u>	.....	.....
Wire, bars and rods .....	.....	.....	<u>10</u>
Minerals, miscellaneous	<u>723</u>	<u>468</u>	<u>559</u>
Borax	<u>391</u>	<u>410</u>	<u>383</u>
Soda and sodium compound	<u>157</u>	<u>58</u>	<u>56</u>
Sulfur	<u>175</u>	.....	<u>120</u>
Nitrates, phosphates and potash	<u>30</u>	<u>21</u>	<u>16</u>
Fishmeal	<u>3</u>	<u>21</u>	<u>16</u>

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST UNITED STATES TO EUROPE—			
Continued			
Nitrates, phosphates and potash—Continued			
Nitrate of soda	23	.....	.....
Phosphates.....	4	.....	.....
Ores and metals	561	391	406
Ores	456	304	287
Copper	10	31	55
Iron.....	.....	23	15
Lead	126	74	77
Tin .....	.....	.....	2
Zinc.....	246	139	88
Other and unclassified	74	37	50
Metals.....	105	87	119
Copper	16	.....	11
Lead	32	22	.....
Scrap .....	.....	.....	85
Zinc.....	50	65	23
Other and unclassified	7	.....	.....
Other agricultural commodities	6	7	9
Beans, edible	1	1	.....
Cotton, raw	3	6	5
Oilseeds	2	.....	.....
Peas, dry .....	.....	.....	4
Petroleum and products	2,029	2,045	1,927
Fuel oil, residual	138	.....	48
Liquefied gas.....	16	12	3
Lubricating oil	1	6	2
Petroleum coke.....	1,874	2,027	1,874
Miscellaneous	1,440	1,341	1,223
Clay, fire and china	15	15	10
Flour, wheat .....	.....	2	.....
Groceries, miscellaneous .....	.....	9	13
Oil coconut .....	.....	.....	4
Oil, vegetable.....	9	12	14
Paper and paper products.....	13	8	41
Wax, paraffin	5	4	.....
Container cargo	1,330	1,246	1,105
All other and unclassified	68	45	36
Total	5,918	5,628	5,386
WEST COAST UNITED STATES TO AFRICA:			
Grains.....	1,760	957	631
Barley .....	.....	26	.....
Rice.....	30	27	.....
Wheat	1,730	904	631
Lumber and products	39	97	15
Boards and planks	27	93	.....
Pulpwood.....	12	4	15
Manufactures of iron and steel, miscellaneous .....	.....	.....	6
Minerals, miscellaneous.....	108	182	58
Soda and sodium compound	41	85	.....
Sulfur	67	97	58
Nitrates, phosphates and potash .....	.....	27	.....
Ores and metals .....	.....	49	56

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
WEST COAST UNITED STATES TO AFRICA—			
Continued			
Ores and metals—Continued			
Ores, miscellaneous	.....	49	41
Metals, miscellaneous	.....	.....	15
Other agricultural commodities	37	33	26
Cotton, raw	37	33	26
Petroleum and products	.....	.....	48
Fuel oil, residual	.....	.....	48
Miscellaneous	14	36	11
Container cargo	13	36	11
All other and unclassified	1	.....	.....
Total	<u>1,958</u>	<u>1,381</u>	<u>851</u>
WEST COAST CANADA TO EAST COAST UNITED STATES:			
Chemicals and petroleum chemicals	242	194	349
Chemicals, unclassified	242	187	320
Petroleum chemicals, miscellaneous	.....	7	29
Lumber and products	458	788	1,242
Boards and planks	453	785	1,217
Pulpwood	5	2	7
Other and unclassified	.....	1	18
Other agricultural commodities	.....	.....	20
Oilseeds	.....	.....	20
Petroleum and products	505	101	205
Crude oil	401	80	106
Diesel oil	.....	21	75
Gasoline	104	.....	24
Miscellaneous	5	1	17
Clay, fire and china	.....	.....	16
Paper and paper products	4	1	.....
Container cargo	1	.....	1
Total	<u>1,209</u>	<u>1,084</u>	<u>1,834</u>
WEST COAST CANADA TO EAST COAST SOUTH AMERICA:			
Canned and refrigerated foods, miscellaneous	.....	.....	2
Chemicals and petroleum chemicals, miscellaneous	16	.....	7
Coal and coke (excluding petroleum coke)	56	.....	.....
Coal	56	.....	.....
Grains	194	65	69
Barley	79	16	19
Oats	1	.....	.....
Wheat	106	49	45
Other and unclassified	8	.....	5
Lumber and products	40	17	48
Pulpwood	40	17	48
Minerals, miscellaneous	292	261	232
Asbestos	.....	.....	1
Soda and sodium compounds	.....	.....	8
Sulfur	292	261	223
Nitrates, phosphates and potash	.....	35	78
Ammonium compounds	.....	4	.....

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST CANADA TO EAST COAST SOUTH AMERICA—Continued			
Nitrates, phosphates and potash—Continued			
Potash	31	78	15
Ores and metals	35	35	15
Ores	15	26	5
Copper	15	25	5
Other and unclassified .....	.....	1	.....
Metals.....	20	9	10
Copper	20	9	10
Other agricultural commodities	21	16	.....
Beans, edible	11	5	.....
Peas, dry	10	11	.....
Miscellaneous	78	50	37
Paper and paper products.....	65	40	25
Container cargo	13	9	12
All other and unclassified .....	.....	1	.....
Total.....	<u>732</u>	<u>481</u>	<u>485</u>
WEST COAST CANADA TO WEST INDIES:			
Lumber and products	38	44	71
Boards and planks	38	42	71
Plywood, veneers, composition board.....	.....	2	.....
Minerals, miscellaneous	21	39	30
Sulfur	21	39	30
Nitrates, phosphates and potash	20	24	39
Ammonium compounds	4	15	18
Potash .....	.....	.....	3
Fertilizers, unclassified.....	16	9	18
Miscellaneous	2	2	6
Paper and paper products.....	2	2	6
Total.....	<u>81</u>	<u>109</u>	<u>146</u>
WEST COAST CANADA TO EUROPE:			
Canned and refrigerated foods	33	24	21
Refrigerated foods	33	24	21
Fish.....	18	6	6
Other and unclassified	15	18	15
Chemicals and petroleum chemicals	23	4	147
Chemicals, unclassified	13	4	109
Petroleum chemicals, miscellaneous	10	.....	38
Coal and coke (excluding petroleum coke)	2,365	1,944	1,582
Coal	2,253	1,944	1,582
Coke	112	.....	.....
Grains	530	288	243
Barley	448	186	148
Wheat	52	73	73
Other and unclassified	30	29	22
Lumber and products	3,042	3,401	3,186
Boards and planks	1,388	1,684	1,575
Plywood, veneers, composition board.....	79	117	111
Pulpwood.....	1,475	1,440	1,301
Other and unclassified	100	160	199
Machinery and equipment, miscellaneous	3	2	1

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST CANADA TO EUROPE—Continued			
Manufactures of iron and steel, miscellaneous	1	.....	.....
Minerals, miscellaneous	377	985	389
Asbestos .....	.....	3	3
Borax	4	10	1
Sulfur	373	972	385
Nitrates, phosphates and potash	34	37	17
Fishmeal	2	1	1
Potash	15	13	16
Fertilizer, unclassified	17	23	.....
Ores and metals	132	91	195
Ores	89	70	146
Copper	57	70	126
Iron .....	.....	.....	20
Lead	11	.....	.....
Zinc	21	.....	.....
Metals	43	21	49
Aluminum	4	2	7
Copper	10	.....	6
Lead	14	15	20
Zinc	15	4	13
Other and unclassified .....	.....	.....	3
Other agricultural commodities	30	8	15
Beans, edible .....	.....	4	.....
Oilseeds	26	4	15
Peas, dry	4	.....	.....
Petroleum and products	224	159	.....
Petroleum coke	224	159	.....
Miscellaneous	672	594	639
Groceries, miscellaneous	1	.....	.....
Oil, vegetable .....	.....	2	1
Paper and paper products	335	311	332
Seeds, excluding oilseeds .....	.....	3	.....
Tallow	26	28	30
Container cargo	278	235	246
All other and unclassified	32	15	30
Total	<u>7,466</u>	<u>7,537</u>	<u>6,435</u>
WEST COAST CANADA TO AFRICA:			
Coal and coke (excluding petroleum coke)	122	.....	.....
Coal	122	.....	.....
Grains	264	156	78
Barley	49	.....	.....
Wheat	213	156	78
Other and unclassified	2	.....	.....
Lumber and products	303	267	314
Boards and planks	250	267	293
Plywood, veneers, composition board	18	.....	19
Pulpwood	19	.....	2
Other and unclassified	16	.....	.....
Minerals, miscellaneous	1,680	1,016	1,045
Sulfur	1,680	1,016	1,045
Other agricultural commodities, miscellaneous .....	.....	2	.....
Miscellaneous .....	.....	.....	4

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
WEST COAST CANADA TO AFRICA—Continued			
Miscellaneous—Continued			
Paper and paper products.....	.....	.....	4
Total.....	2,369	1,442	1,441
WEST COAST CANADA TO ASIA (MIDDLE EAST):			
Lumber and products	6	6	2
Boards and planks .....	.....	2	2
Pulpwood.....	4	4	.....
Other and unclassified	2	.....	.....
Minerals, miscellaneous.....	261	259	245
Sulfur	261	259	245
Miscellaneous	1	1	.....
Paper and paper products.....	.....	1	.....
All other and unclassified	1	.....	.....
Total.....	268	265	247
WEST COAST CENTRAL AMERICA TO EAST COAST			
UNITED STATES:			
Canned and refrigerated foods.....	14	2	21
Refrigerated foods	14	2	21
Bananas	14	1	20
Other and unclassified .....	.....	1	1
Chemicals and petroleum chemicals	181	150	176
Chemicals, unclassified	174	150	171
Petroleum chemicals, miscellaneous	7	.....	5
Machinery and equipment .....	.....	5	.....
Automobiles, trucks, accessories and parts .....	.....	5	.....
Manufactures of iron and steel	63	97	2
Plates, sheets and coils	63	61	.....
Tubes, pipes and fittings .....	.....	.....	2
Other and unclassified .....	.....	36	.....
Minerals, miscellaneous	556	537	332
Salt	556	537	332
Nitrates, phosphates and potash	8	10	32
Fishmeal.....	8	10	20
Fertilizers, unclassified.....	.....	.....	12
Ores and metals	177	143	.....
Ores	177	143	.....
Iron.....	.....	106	.....
Other and unclassified	177	37	.....
Other agricultural commodities	824	626	235
Coffee	8	27	3
Molasses.....	251	172	142
Skins and hides.....	.....	7	.....
Sugar	565	420	90
Petroleum and products	11	3	12
Gasoline .....	.....	3	12
Liquefied gas.....	10	.....	.....
Other and unclassified	1	.....	.....
Miscellaneous	5	3	21
Oil fish .....	.....	3	.....
Container cargo	4	.....	1

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST CENTRAL AMERICA TO EAST COAST			
UNITED STATES—Continued			
Miscellaneous—Continued			
All other and unclassified	1	.....	20
Total	<u>1,839</u>	<u>1,575</u>	<u>833</u>
WEST COAST CENTRAL AMERICA TO EAST COAST			
CENTRAL AMERICA:			
Canned and refrigerated foods, miscellaneous .....	.....	.....	1
Chemicals and petroleum chemicals .....	.....	23	.....
Chemicals, unclassified .....	.....	23	.....
Grains	59	67	.....
Corn	30	.....	.....
Sorghum .....	.....	9	.....
Wheat	29	58	.....
Lumber and products, miscellaneous .....	.....	.....	3
Machinery and equipment, miscellaneous .....	.....	1	.....
Manufactures of iron and steel	6	.....	.....
Plates, sheets and coils	6	.....	.....
Minerals, miscellaneous .....	.....	27	.....
Salt .....	.....	27	.....
Nitrates, phosphates and potash	342	268	416
Ammonium compounds	8	.....	.....
Phosphates	334	268	416
Ores and metals .....	.....	24	.....
Metals .....	.....	24	.....
Copper .....	.....	24	.....
Other agricultural commodities	41	15	38
Oilseeds	1	1	.....
Sugar	40	14	38
Petroleum and products	39	93	58
Diesel oil	20	2	19
Fuel oil, residual .....	.....	53	.....
Gasoline	19	19	39
Other and unclassified .....	.....	19	.....
Miscellaneous	5	17	2
Oil, fish	1	.....	.....
Oil, vegetable	4	17	.....
All other and unclassified .....	.....	.....	2
Total	<u>492</u>	<u>533</u>	<u>518</u>
WEST COAST CENTRAL AMERICA TO EAST COAST			
SOUTH AMERICA:			
Canned and refrigerated foods	67	56	60
Refrigerated foods	67	56	60
Dairy products .....	.....	.....	1
Fish	67	56	59
Chemicals and petroleum chemicals, miscellaneous .....	.....	7	.....
Lumber and products, miscellaneous .....	.....	3	.....
Nitrates, phosphates and potash	13	5	.....
Ammonium compounds	12	5	.....
Fishmeal	1	.....	.....
Ores and metals	43	30	13
Ores	<u>43</u>	<u>30</u>	<u>12</u>

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

		Fiscal year		
		1991	1990	1989
WEST COAST CENTRAL AMERICA TO EAST COAST				
SOUTH AMERICA—Continued				
Ores and metals—Continued				
Ores—Continued				
Copper .....	.....	12	12	12
Other and unclassified	43	18	.....	.....
Metals.....	.....	.....	.....	1
Scrap .....	.....	.....	1	1
Other agricultural commodities	18	37	20	.....
Sugar	18	37	20	.....
Miscellaneous	4	2	9	9
Container cargo	3	1	9	.....
All other and unclassified	1	1	.....	.....
Total.....	<u>145</u>	<u>141</u>	<u>102</u>	.....
WEST COAST CENTRAL AMERICA TO WEST INDIES:				
Canned and refrigerated foods.....	52	94	90	.....
Refrigerated foods	<u>52</u>	<u>94</u>	<u>90</u>	.....
Bananas	7	.....	.....	.....
Fish.....	45	93	89	.....
Other and unclassified .....	.....	1	1	1
Chemicals and petroleum chemicals, miscellaneous .....	.....	13	.....	.....
Grains, miscellaneous .....	.....	16	.....	.....
Lumber and products	15	15	19	.....
Boards and planks	15	15	19	.....
Machinery and equipment, miscellaneous .....	.....	1	.....	.....
Manufactures of iron and steel, miscellaneous .....	.....	.....	5	.....
Nitrates, phosphates and potash	3	6	4	.....
Fishmeal.....	3	2	4	.....
Nitrate of soda .....	.....	4	.....	.....
Ores and metals	<u>45</u>	<u>.....</u>	<u>.....</u>	<u>.....</u>
Ores	<u>45</u>	<u>.....</u>	<u>.....</u>	<u>.....</u>
Iron.....	20	.....	.....	.....
Other and unclassified	25	.....	.....	.....
Other agricultural commodities	<u>134</u>	<u>59</u>	<u>73</u>	.....
Coffee .....	.....	.....	1	.....
Molasses.....	82	31	22	.....
Peas, dry .....	.....	.....	5	.....
Sugar, raw	52	28	45	.....
Petroleum and products	<u>6</u>	<u>24</u>	<u>11</u>	.....
Fuel oil, residual	6	24	11	.....
Miscellaneous	<u>5</u>	<u>17</u>	<u>8</u>	.....
Oil, vegetable.....	3	.....	.....	.....
Container cargo	2	17	3	.....
All other and unclassified .....	.....	.....	5	.....
Total.....	<u>260</u>	<u>247</u>	<u>210</u>	.....
WEST COAST CENTRAL AMERICA TO EUROPE:				
Canned and refrigerated foods.....	<u>573</u>	<u>524</u>	<u>355</u>	.....
Canned foods, miscellaneous	<u>2</u>	<u>1</u>	<u>1</u>	.....
Fish.....	2	.....	.....	.....
Fruit .....	.....	.....	1	.....
Other and unclassified .....	.....	1	.....	.....
Refrigerated foods	<u>571</u>	<u>523</u>	<u>354</u>	.....

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST CENTRAL AMERICA TO EUROPE—			
Continued			
Canned and refrigerated foods—Continued			
Refrigerated foods—Continued			
Bananas	530	450	307
Fish	39	66	40
Fruit, excluding bananas	1	4	1
Other and unclassified	1	3	6
Chemicals and petroleum chemicals .....	.....	2	.....
Chemicals, unclassified .....	.....	2	.....
Coal and coke	29	.....	.....
Coke	29	.....	.....
Grains	1	.....	.....
Other and unclassified	1	.....	.....
Lumber and products	6	18	21
Boards and planks	3	4	7
Pulpwood	3	14	14
Manufactures of iron and steel	28	107	174
Angles, shapes and sections .....	.....	.....	30
Plates, sheets and coils	28	107	110
Wire, bars and rods .....	.....	.....	34
Ores and metals	35	23	23
Ores	13	10	17
Copper	7	3	10
Lead .....	.....	2	.....
Zinc	6	5	7
Metals	22	13	6
Copper	20	12	4
Iron .....	.....	1	.....
Other and unclassified	2	.....	2
Other agricultural commodities	125	264	392
Beans, edible .....	.....	.....	1
Coffee	79	119	84
Cotton, raw	5	12	24
Molasses	19	79	69
Oilseeds	1	1	.....
Peas, dry	21	.....	34
Sugar .....	.....	53	180
Miscellaneous	52	56	61
Clay, fire and china .....	.....	3	.....
Groceries, miscellaneous	1	5	.....
Oil, fish .....	.....	6	.....
Oil, vegetable .....	.....	.....	2
Paper and paper products .....	.....	.....	2
Seeds, excluding oilseeds	5	2	.....
Container cargo	46	37	50
All other and unclassified .....	.....	3	7
Total	<u><u>849</u></u>	<u><u>995</u></u>	<u><u>1,026</u></u>
WEST COAST CENTRAL AMERICA TO AFRICA:			
Canned and refrigerated foods	1	6	5
Refrigerated foods	1	6	5
Bananas .....	.....	.....	3
Fish	1	6	2

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST CENTRAL AMERICA TO AFRICA—			
Continued			
Grains.....	14	26	273
Corn.....	14	.....	.....
Wheat.....	.....	26	273
Lumber and products.....	8	6	7
Boards and planks.....	8	6	5
Other and unclassified.....	.....	.....	2
Manufactures of iron and steel.....	.....	.....	15
Wires, bars and rods.....	.....	.....	15
Other agricultural commodities.....	109	84	47
Peas, dry.....	.....	.....	7
Sugar.....	109	84	40
Miscellaneous.....	3	1	1
Seeds, excluding oilseeds.....	3	.....	.....
All other and unclassified.....	.....	1	1
Total.....	<u>135</u>	<u>124</u>	<u>348</u>
WEST COAST CENTRAL AMERICA TO ASIA (MIDDLE EAST):			
Canned and refrigerated foods.....	2	.....	9
Refrigerated foods.....	2	.....	9
Bananas.....	1	.....	9
Fish.....	1	.....	.....
Other agricultural commodities.....	3	.....	.....
Oilseeds.....	3	.....	.....
Petroleum and products.....	24	.....	.....
Jet fuel.....	24	.....	.....
Miscellaneous.....	1	.....	1
All other and unclassified.....	1	.....	1
Total.....	<u>30</u>	<u>.....</u>	<u>10</u>
WEST COAST SOUTH AMERICA TO EAST COAST UNITED STATES:			
Canned and refrigerated foods.....	1,051	1,085	906
Canned foods.....	8	7	25
Fish.....	2	2	6
Fruit.....	5	3	11
Vegetables, canned.....	1	2	8
Refrigerated foods.....	1,043	1,078	881
Bananas.....	579	580	475
Fish.....	22	23	32
Fruit, excluding bananas.....	383	419	339
Refrigerated, miscellaneous.....	59	56	35
Chemicals and petroleum chemicals.....	51	96	242
Chemicals, miscellaneous.....	47	94	232
Petroleum chemicals, miscellaneous.....	4	2	10
Coal and coke (excluding petroleum coke).....	.....	.....	3
Coal.....	.....	.....	3
Grains, miscellaneous.....	.....	1	2
Lumber and products.....	80	59	64
Boards and planks.....	34	35	36
Plywood, veneers, composition board.....	8	12	11
Pulpwood.....	34	5	14

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO EAST COAST			
UNITED STATES—Continued			
Lumber and products—Continued			
Other and unclassified	4	7	3
Machinery and equipment	7	1	2
Agricultural machinery and implements	3	.....	1
Automobiles, trucks, accessories and parts	2	.....	.....
Construction machinery and equipment	2	1	1
Manufactures of iron and steel	1	28	15
Angles, shapes and sections .....	.....	.....	1
Nails, tacks and spikes .....	.....	1	2
Plates, sheets and coils .....	.....	.....	1
Tubes, pipes and fittings	1	3	8
Wire, bars and rods .....	.....	2	2
Other and unclassified .....	.....	22	1
Minerals, miscellaneous	588	810	375
Salt	582	810	375
Soda and sodium compounds	6	.....	.....
Nitrates, phosphates and potash	185	286	304
Fishmeal	27	74	124
Nitrate of soda	132	190	180
Potash	10	6	.....
Fertilizers, miscellaneous	16	16	.....
Ores and metals	468	428	473
Ores	343	247	222
Chrome .....	.....	.....	1
Copper	3	10	3
Iron	275	173	172
Lead .....	.....	.....	3
Tin .....	.....	.....	10
Zinc	18	9	3
Other and unclassified	47	55	30
Metals	125	181	251
Aluminum	4	.....	.....
Copper	98	158	189
Iron .....	.....	.....	1
Lead .....	.....	2	5
Scrap .....	.....	.....	1
Zinc	23	21	20
Other and unclassified .....	.....	.....	35
Other agricultural commodities	370	617	424
Beans, edible .....	.....	1	.....
Cocoa and cacao beans	31	33	43
Coffee	98	106	77
Cotton, raw .....	.....	2	3
Molasses	21	55	21
Skin and hides .....	.....	18	.....
Sugar	220	401	279
Wool, raw .....	.....	1	1
Petroleum and products	2,750	4,593	6,077
Crude oil	1,667	2,213	3,444
Diesel oil .....	.....	28	254
Fuel oil, residual	1,082	2,250	2,333
Gasoline	1	54	46
Other and unclassified .....	.....	48	.....

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO EAST COAST			
UNITED STATES—Continued			
Miscellaneous	692	701	605
Bricks and tile .....	.....	4	2
Fibers, plant	1	.....	1
Groceries, miscellaneous	1	5	7
Liquors and wines	3	4	6
Marble and stone .....	.....	1	3
Oil, fish	4	5	.....
Oil, vegetable	9	18	18
Paper and paper products	12	4	7
Porcelainware .....	.....	.....	1
Slag, clinkers and dross .....	.....	28	28
Textiles	2	5	7
Tobacco and products .....	.....	.....	1
Container cargo	608	598	486
All other and unclassified	52	29	38
Total	<u>6,243</u>	<u>8,705</u>	<u>9,493</u>
WEST COAST SOUTH AMERICA TO EAST COAST			
CANADA:			
Nitrates, phosphates and potash	6	.....	6
Nitrate of soda	6	.....	6
Ores and metals	5	21	29
Ores	5	15	17
Copper	5	15	17
Metals .....	.....	6	12
Copper .....	.....	6	12
Other agricultural commodities, miscellaneous .....	.....	.....	1
Petroleum and products .....	.....	27	54
Crude oil .....	.....	.....	54
Fuel oil, residual .....	.....	27	.....
Miscellaneous	5	4	1
Liquors and wines	3	3	.....
Container cargo	1	.....	.....
All other and unclassified	1	1	1
Total	<u>16</u>	<u>52</u>	<u>91</u>
WEST COAST SOUTH AMERICA TO EAST COAST			
CENTRAL AMERICA:			
Chemicals and petroleum chemicals .....	.....	1	.....
Chemicals, unclassified .....	.....	1	.....
Lumber and products, miscellaneous .....	.....	1	.....
Manufactures of iron and steel	2	.....	.....
Plates, sheets and coils	2	.....	.....
Nitrates, phosphates and potash .....	.....	3	3
Ores and metals	48	30	60
Ores	33	28	56
Copper	2	.....	4
Lead	25	13	30
Tin	1	2	5
Zinc	5	13	17
Metals, miscellaneous	15	2	4
Copper	10	2	2
Zinc	5	.....	.....

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO EAST COAST			
CENTRAL AMERICA—Continued			
Ores and metals—Continued			
Metals, miscellaneous—Continued			
Other and unclassified .....	.....	.....	2
Other agricultural commodities .....	.....	5	20
Beans, edible .....	.....	.....	20
Coffee .....	.....	1	.....
Sugar .....	.....	4	.....
Petroleum and products	850	903	437
Crude oil	825	842	437
Fuel oil, residual	25	56	.....
Gasoline .....	.....	5	.....
Miscellaneous	61	64	35
Oil, fish	22	31	16
Oil, vegetable	6	9	5
Paper and paper products .....	.....	1	3
Container cargo	26	21	7
All other and unclassified	7	2	4
Total	961	1,008	555
WEST COAST SOUTH AMERICA TO EAST COAST			
SOUTH AMERICA:			
Canned and refrigerated foods	13	17	4
Canned foods	2	.....	1
Fish	1	.....	1
Fruit	1	.....	.....
Refrigerated foods	11	17	3
Bananas	2	8	.....
Fish	2	5	3
Fruit, excluding bananas	7	4	.....
Chemicals and petroleum chemicals	1	6	9
Chemicals, unclassified	1	6	9
Grains .....	.....	7	2
Soybeans .....	.....	7	2
Lumber and products	24	36	29
Boards and planks	5	5	7
Plywood, veneers, composition board	2	.....	.....
Pulpwood	17	31	22
Manufactures of iron and steel, miscellaneous	1	1	19
Minerals, miscellaneous .....	.....	2	6
Borax .....	.....	2	.....
Sulfur .....	.....	.....	6
Nitrates, phosphates and potash	2	5	1
Ammonium compounds .....	.....	2	.....
Nitrate of soda	2	.....	.....
Fishmeal .....	.....	3	1
Ores and metals	98	56	83
Ores	64	30	51
Copper	13	.....	.....
Zinc	11	2	2
Other and unclassified	40	28	49
Metals	34	26	32
Copper	14	6	10
Lead	6	6	6

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO EAST COAST			
SOUTH AMERICA—Continued			
Ores and metals—Continued			
Metals—Continued			
Zinc	13	13	15
Other and unclassified	1	1	1
Other agricultural commodities	83	27	4
Beans, edible	4	3	3
Cotton, raw .....	.....	.....	1
Sugar	79	24	.....
Petroleum and products	25	10	121
Crude oil	17	.....	48
Gasoline .....	.....	10	73
Liquefied gas	8	.....	.....
Miscellaneous	81	59	67
Cement	3	1	.....
Liquors and wines	2	.....	.....
Marble and stone .....	.....	1	1
Oil, fish	3	1	.....
Oil, vegetable	31	24	35
Paper and paper products	7	7	15
Textiles	1	.....	.....
Container cargo	26	15	4
All other and unclassified	8	10	12
Total	<u>328</u>	<u>226</u>	<u>345</u>
WEST COAST SOUTH AMERICA TO CRISTOBAL, R.P.:			
Canned and refrigerated foods, miscellaneous	1	.....	.....
Nitrates, phosphates and potash .....	.....	.....	3
Fishmeal .....	.....	.....	3
Ores and metals, miscellaneous .....	.....	1	.....
Petroleum and products	59	.....	15
Crude oil	50	.....	.....
Diesel oil	8	.....	.....
Fuel oil, residual .....	.....	.....	15
Gasoline	1	.....	.....
Miscellaneous	9	6	8
Container cargo	6	5	5
All other and unclassified	3	1	3
Total	<u>69</u>	<u>7</u>	<u>26</u>
WEST COAST SOUTH AMERICA TO WEST INDIES:			
Canned and refrigerated foods	20	42	80
Canned foods, miscellaneous .....	.....	.....	2
Refrigerated foods	20	42	78
Fish	13	35	69
Fruit, excluding bananas	6	5	7
Other and unclassified	1	2	2
Chemicals and petroleum chemicals, miscellaneous .....	.....	3	.....
Grains .....	.....	.....	4
Wheat .....	.....	.....	4
Lumber and products	38	75	49
Boards and planks	35	46	46
Plywood, veneers, composition board	3	3	3
Pulpwood .....	.....	.....	.....

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO WEST INDIES—			
Continued			
Lumber and products—Continued			
Other and unclassified	23	.....
Manufactures of iron and steel, miscellaneous	2
Nitrates, phosphates and potash	3	28
Fishmeal.....	41
Fertilizers, unclassified.....	3	.....
Other agricultural commodities	21	14
Beans, edible	11	3
Molasses.....	6	5
Sugar	4	6
Petroleum and products	2,693	3,797
Crude oil	1,919	3,316
Diesel oil	45	.....
Fuel oil, residual	682	453
Gasoline	45	28
Jet fuel	2	.....
Miscellaneous	14	27
Groceries, miscellaneous	1	3
Oil, vegetable.....	1	16
Paper and paper products.....	2	2
Tallow	1	.....
Container cargo	9	15
All other and unclassified	10
Total	2,789	3,986
	<u> </u>	<u> </u>	<u> </u>
WEST COAST SOUTH AMERICA TO EUROPE:			
Canned and refrigerated foods.....	1,958	1,541
Canned foods	35	22
Fish.....	16	16
Fruit	6	1
Vegetables, canned	11	5
Other and unclassified	2	.....
Refrigerated foods	1,923	1,519
Bananas	954	553
Dairy products	3
Fish.....	342	483
Fruit, excluding bananas	496	347
Other and unclassified	131	136
Chemicals and petroleum chemicals	14	22
Chemicals, unclassified	14	7
Petroleum chemicals, miscellaneous	15
Grains.....	1	1
Corn	1	1
Rice.....	11
Lumber and products	620	557
Boards and planks	263	238
Plywood, veneers, composition board.....	21	14
Pulpwood.....	143	190
Other and unclassified	193	115
Machinery and equipment, miscellaneous	1	1
Manufactures of iron and steel, miscellaneous	4
Minerals, miscellaneous	5	.....
Borax	1	.....

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO EUROPE—			
Continued			
Minerals, miscellaneous—Continued			
Soda and sodium compounds	4	.....	.....
Nitrates, phosphates and potash	870	1,303	1,313
Fishmeal.....	731	1,128	1,174
Nitrate of soda	132	160	135
Potash	6	1	4
Fertilizers, unclassified.....	1	14	.....
Ores and metals	1,875	1,845	1,615
Ores	1,008	1,014	890
Copper.....	311	263	280
Iron.....	.....	107	54
Lead	55	59	89
Manganese.....	.....	.....	14
Tin	2	10	15
Zinc.....	574	545	380
Other and unclassified	66	30	58
Metals.....	867	831	725
Copper.....	739	662	613
Iron.....	9	12	.....
Lead	32	30	15
Scrap .....	.....	27	.....
Tin, including tinplate	4	1	1
Zinc.....	72	96	87
Other and unclassified	11	3	9
Other agricultural commodities	151	184	130
Beans, edible	1	1	4
Cocoa and cacao beans	3	2	6
Coffee	129	156	101
Cotton, raw	15	11	15
Oilseeds .....	.....	10	.....
Skins and hides.....	2	2	1
Wool, raw	1	2	3
Petroleum and products	31	3	.....
Diesel oil	2	3	.....
Fuel oil, residual	2	.....	.....
Gasoline	22	.....	.....
Other and unclassified	5	.....	.....
Miscellaneous	824	819	927
Bricks and tile .....	.....	1	2
Carbon black.....	3	.....	.....
Fibers, plant .....	.....	8	1
Groceries, miscellaneous	33	1	34
Liquors and wines	1	1	1
Marble and stone .....	.....	1	.....
Oil, fish	90	113	285
Paper and paper products.....	91	33	60
Textiles	9	5	5
Container cargo	531	599	478
All other and unclassified	66	57	61
Total	<u>6,350</u>	<u>6,280</u>	<u>5,684</u>
WEST COAST SOUTH AMERICA TO AFRICA:			
Canned and refrigerated foods	20	22	19

WEST COAST SOUTH AMERICA TO AFRICA:

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
WEST COAST SOUTH AMERICA TO AFRICA—			
Continued			
Canned and refrigerated foods—Continued			
Refrigerated foods	20	22	19
Bananas	6	1	.....
Fish .....	.....	9	5
Fruit, excluding bananas	14	12	14
Lumber and products	48	.....	.....
Boards and planks	43	.....	.....
Other and unclassified	5	.....	.....
Nitrates, phosphates and potash .....	.....	4	20
Ores and metals	47	51	20
Ores	47	45	20
Lead	9	.....	.....
Zinc	38	45	20
Metals .....	.....	6	.....
Zinc .....	.....	6	.....
Other agricultural commodities	2	10	58
Coffee	2	10	3
Sugar .....	.....	.....	55
Miscellaneous	1	1	.....
All other and unclassified	1	1	.....
Total	118	88	117
WEST COAST SOUTH AMERICA TO ASIA			
(MIDDLE EAST):			
Canned and refrigerated foods	23	27	65
Refrigerated foods	23	27	65
Bananas	23	25	62
Fruit, excluding bananas .....	.....	3	2
Other and unclassified .....	.....	.....	1
Nitrates, phosphates and potash	21	10	21
Fishmeal	21	10	21
Other agricultural commodities, miscellaneous .....	.....	.....	3
Miscellaneous .....	.....	6	.....
Paper and paper products .....	.....	4	.....
All other and unclassified .....	.....	2	.....
Total	43	45	87
HAWAII TO EAST COAST UNITED STATES:			
Other agricultural commodities	93	209	239
Sugar	93	209	239
Total	93	209	239
OCEANIA TO EAST COAST UNITED STATES:			
Canned and refrigerated foods	486	451	388
Canned foods, miscellaneous	1	.....	.....
Refrigerated foods	485	451	388
Fruit, excluding bananas	41	47	27
Meat	110	39	42
Other and unclassified	334	365	319
Chemicals and petroleum chemicals, miscellaneous	83	20	119
Coal and coke (excluding petroleum coke)	170	170	526
Coal .....	.....	3	.....

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
OCEANIA TO EAST COAST UNITED STATES—			
Continued			
Coal and coke (excluding petroleum coke)—Continued			
Coke	170	167	526
Manufactures of iron and steel	140	62	62
Angles, shapes and sections .....	.....	.....	7
Plates, sheets and coils	87	38	31
Wire, bars and rods	53	24	24
Minerals, miscellaneous	1	.....	.....
Soda and sodium compounds	1	.....	.....
Nitrates, phosphates and potash .....	.....	.....	18
Fertilizers, unclassified .....	.....	.....	18
Ores and metals	1,657	2,251	1,946
Ores	1,647	2,227	1,941
Alumina/bauxite	1,237	1,639	1,299
Chrome .....	.....	2	3
Copper .....	.....	.....	10
Manganese	67	103	125
Other and unclassified	343	483	504
Metals	10	24	5
Iron	8	.....	.....
Lead .....	.....	7	5
Zinc .....	.....	14	.....
Other and unclassified	2	3	.....
Other agricultural commodities	378	418	481
Cocoa and cacao beans	5	3	.....
Molasses	234	266	304
Sugar	138	149	177
Wool, raw	1	.....	.....
Petroleum and products	116	160	107
Gasoline	116	16	24
Liquefied gas .....	.....	128	63
Lubricating oil .....	.....	16	20
Miscellaneous	284	311	275
Clay, fire and china .....	.....	56	.....
Slag, clinkers and dross	2	.....	.....
Container cargo	276	244	265
All other and unclassified	6	11	10
Total	<u>3,315</u>	<u>3,844</u>	<u>3,922</u>
OCEANIA TO EAST COAST CANADA:			
Canned and refrigerated foods	47	54	51
Refrigerated foods	47	54	51
Meat	1	.....	.....
Other and unclassified	46	54	51
Minerals, miscellaneous	27	.....	.....
Sulfur	27	.....	.....
Ores and metals	59	155	107
Ores	59	154	107
Alumina/bauxite	52	69	59
Chrome .....	.....	3	2
Manganese .....	.....	65	20
Other and unclassified	7	17	26
Other agricultural commodities	<u>307</u>	<u>320</u>	<u>420</u>

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
OCEANIA TO EAST COAST CANADA—Continued			
Other agricultural commodities—Continued			
Sugar	307	320	420
Miscellaneous	42	45	54
Container cargo	42	45	53
All other and unclassified .....	.....	.....	1
Total	<u>481</u>	<u>574</u>	<u>632</u>
OCEANIA TO EAST COAST CENTRAL AMERICA:			
Canned and refrigerated foods	17	68	32
Canned foods	13	63	25
Milk	13	63	25
Refrigerated foods	4	5	7
Dairy products	3	5	7
Fruit, excluding bananas	1	.....	.....
Manufactures of iron and steel, miscellaneous	1	.....	.....
Ores and metals	113	221	134
Manganese ore	63	131	103
Ores, miscellaneous	50	90	31
Other agricultural commodities .....	.....	17	.....
Oilseeds .....	.....	17	.....
Petroleum and products .....	.....	1	.....
Lubricating oil .....	.....	1	.....
Miscellaneous	1	4	.....
Container cargo .....	.....	3	.....
All other and unclassified	1	1	.....
Total	<u>132</u>	<u>311</u>	<u>166</u>
OCEANIA TO EAST COAST SOUTH AMERICA:			
Canned and refrigerated foods	28	13	39
Canned foods	25	7	33
Milk	25	7	33
Refrigerated foods	3	6	6
Dairy products	3	6	6
Grains	19	33	12
Barley	19	33	12
Ores and metals	53	815	428
Ores	53	815	428
Alumina/bauxite	53	813	428
Other and unclassified .....	.....	2	.....
Other agricultural commodities .....	.....	53	39
Oilseeds .....	.....	.....	11
Sugar .....	.....	53	28
Miscellaneous	1	.....	.....
Container cargo	1	.....	.....
Total	<u>100</u>	<u>913</u>	<u>518</u>
OCEANIA TO WEST INDIES:			
Canned and refrigerated foods	77	36	47
Canned foods	9	7	12
Milk	9	6	12
Other and unclassified .....	.....	1	.....
Refrigerated foods	68	29	35

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
OCEANIA TO WEST INDIES—Continued			
Canned and refrigerated foods—Continued			
Refrigerated foods—Continued			
Dairy products	21	1	3
Fish.....	28	12	13
Other and unclassified	19	16	19
Miscellaneous	13	10	14
Oil, vegetable.....	.....	.....	3
Container cargo	13	10	11
Total	<u>89</u>	<u>47</u>	<u>61</u>
OCEANIA TO EUROPE:			
Canned and refrigerated foods.....	<u>347</u>	<u>316</u>	<u>258</u>
Canned foods	6	.....	.....
Fruit	3	.....	.....
Vegetables, canned	3	.....	.....
Refrigerated foods	<u>341</u>	<u>316</u>	<u>258</u>
Bananas .....	.....	3	.....
Dairy products	20	.....	.....
Fruit, excluding bananas.....	<u>296</u>	<u>290</u>	<u>234</u>
Meat	2	3	7
Other and unclassified	23	20	17
Chemicals and petroleum chemicals, miscellaneous	93	61	54
Coal and coke (excluding petroleum coke) .....	.....	<u>38</u>	<u>18</u>
Coal .....	.....	38	18
Grains.....	.....	<u>32</u>	.....
Barley .....	.....	32	.....
Lumber and products	6	9	5
Boards and planks	2	3	.....
Plywood, veneers, composition board.....	2	2	1
Pulpwood	2	4	4
Machinery and equipment, miscellaneous	1	.....	.....
Ores and metals	<u>50</u>	<u>57</u>	<u>63</u>
Ores	<u>21</u>	<u>53</u>	<u>63</u>
Alumina/bauxite .....	.....	.....	36
Lead .....	.....	27	.....
Zinc.....	8	5	1
Other and unclassified	13	21	26
Metals.....	<u>29</u>	<u>4</u>	.....
Copper	17	4	.....
Lead	10	.....	.....
Other and unclassified	2	.....	.....
Other agricultural commodities	<u>184</u>	<u>250</u>	<u>181</u>
Cocoa and cacao beans .....	.....	1	.....
Coffee .....	.....	1	.....
Copra and coconuts	6	7	.....
Molasses .....	.....	85	35
Sugar	<u>178</u>	<u>153</u>	<u>146</u>
Wool, raw .....	.....	3	.....
Petroleum and products	<u>1</u>	.....	.....
Asphalt	1	.....	.....
Miscellaneous	<u>142</u>	<u>179</u>	<u>200</u>
Clay, fire and china .....	.....	6	.....
Groceries, miscellaneous	10	.....	.....

Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
OCEANIA TO EUROPE—Continued			
Miscellaneous—Continued			
Paper and paper products.....	6	5	1
Tallow.....	2	6	3
Container cargo.....	124	160	196
All other and unclassified.....	.....	2	.....
Total.....	<u>824</u>	<u>940</u>	<u>779</u>
ASIA TO EAST COAST UNITED STATES:			
Canned and refrigerated foods.....	99	123	134
Refrigerated foods.....	99	123	134
Other and unclassified.....	99	123	134
Chemicals and petroleum chemicals.....	214	147	262
Chemicals, unclassified.....	192	118	223
Petroleum chemicals, miscellaneous.....	22	29	39
Coal and coke (excluding petroleum coke).....	<u>805</u>	<u>580</u>	<u>1,323</u>
Coal.....	8	.....	.....
Coke.....	797	580	1,323
Lumber and products.....	500	575	602
Boards and planks.....	13	32	23
Plywood, veneers, composition board.....	487	524	526
Other and unclassified.....	.....	19	53
Machinery and equipment.....	<u>1,305</u>	<u>1,378</u>	<u>1,773</u>
Agricultural machinery and implements.....	3	9	18
Automobiles, trucks, accessories and parts.....	1,226	1,252	1,605
Construction machinery and equipment.....	32	86	100
Electrical machinery and apparatus.....	15	2	9
Other and unclassified.....	29	29	41
Manufactures of iron and steel.....	<u>2,392</u>	<u>2,522</u>	<u>3,044</u>
Angles, shapes and sections.....	94	63	206
Nails, tacks and spikes.....	25	48	60
Plates, sheets and coils.....	1,006	1,212	1,184
Tubes, pipes and fittings.....	271	285	326
Wire, bars and rods.....	133	121	179
Other and unclassified.....	863	793	1,089
Minerals, miscellaneous.....	1	.....	.....
Nitrates, phosphates and potash.....	.....	.....	90
Fertilizers, unclassified.....	.....	.....	90
Ores and metals.....	<u>1,639</u>	<u>1,650</u>	<u>1,434</u>
Ores.....	<u>1,612</u>	<u>1,621</u>	<u>1,407</u>
Alumina/bauxite.....	275	454	360
Chrome.....	12	28	49
Iron.....	.....	.....	21
Manganese.....	35	12	20
Other and unclassified.....	1,290	1,127	957
Metals.....	<u>27</u>	<u>29</u>	<u>27</u>
Aluminum.....	4	11	6
Copper.....	10	8	2
Iron.....	.....	.....	11
Tin, including tinplate.....	2	3	2
Zinc.....	.....	.....	1
Other and unclassified.....	11	7	5
Other agricultural commodities.....	<u>289</u>	<u>247</u>	<u>263</u>
Beans, edible.....	.....	1	1

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
ASIA TO EAST COAST UNITED STATES—Continued			
Other agricultural commodities—Continued			
Cocoa and cacao beans	5	1	1
Coffee .....	.....	1	2
Rubber, raw	34	46	131
Sugar	250	198	128
Petroleum and products	244	161	248
Fuel oil, residual	53	.....	49
Gasoline	19	55	77
Liquefied gas	6	.....	23
Lubricating oil	16	22	11
Petroleum coke	120	84	88
Other and unclassified	30	.....	.....
Miscellaneous	<u>5,058</u>	<u>5,130</u>	<u>5,048</u>
Bricks and tile	2	3	2
Clay, fire and china	1	.....	6
Glass and glassware	2	.....	.....
Groceries, miscellaneous .....	.....	.....	5
Oil, coconut	44	60	41
Oil, vegetable	47	92	43
Rubber, manufactured .....	.....	6	.....
Slag, clinkers and dross	3	.....	.....
Wax, paraffin	3	2	10
Container cargo	4,831	4,871	4,861
All other and unclassified	125	96	80
Total	<u>12,546</u>	<u>12,515</u>	<u>14,221</u>
 ASIA TO EAST COAST CANADA:			
Canned and refrigerated foods	4	4	9
Refrigerated foods	<u>4</u>	<u>4</u>	<u>9</u>
Fish	1	.....	4
Other and unclassified	3	4	5
Chemicals and petroleum chemicals, miscellaneous .....	.....	1	10
Coal and coke (excluding petroleum coke)	9	.....	.....
Coal	9	.....	.....
Machinery and equipment	<u>12</u>	<u>5</u>	<u>3</u>
Automobiles, trucks, accessories and parts .....	.....	.....	2
Construction machinery and equipment	8	3	1
Electrical machinery and apparatus	1	1	.....
Other and unclassified	3	1	.....
Manufactures of iron and steel	<u>11</u>	.....	2
Angles, shapes and sections .....	.....	.....	1
Plates, sheets and coils	1	.....	1
Other and unclassified	10	.....	.....
Ores and metals	<u>199</u>	<u>209</u>	<u>187</u>
Ores	<u>199</u>	<u>209</u>	<u>187</u>
Alumina/bauxite	46	45	63
Chrome	7	13	11
Copper	10	10	.....
Other and unclassified	136	141	113
Miscellaneous	<u>306</u>	<u>373</u>	<u>360</u>
Oil, vegetable .....	.....	1	3
Container cargo	305	369	353

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
ASIA TO EAST COAST CANADA—Continued			
Miscellaneous—Continued			
All other and unclassified	1	3	4
Total	<u>541</u>	<u>593</u>	<u>571</u>
ASIA TO EAST COAST CENTRAL AMERICA:			
Chemicals and petroleum chemicals	60	4	3
Chemicals, unclassified	59	1	.....
Petroleum chemicals, miscellaneous	1	3	3
Coal and coke (excluding petroleum coke) .....	.....	15	.....
Coal .....	.....	15	.....
Grains	28	15	.....
Rice	28	15	.....
Machinery and equipment, miscellaneous .....	.....	1	.....
Manufactures of iron and steel .....	.....	1	.....
Plates, sheets and coils .....	.....	1	.....
Ores and metals	98	.....	.....
Ores	98	.....	.....
Alumina/bauxite	20	.....	.....
Other and unclassified	78	.....	.....
Other agricultural commodities .....	.....	.....	3
Rubber, raw .....	.....	.....	3
Miscellaneous	30	40	21
Clay, fire and china	4	.....	.....
Oil, coconut	2	9	.....
Oil vegetable	17	22	12
Wax, paraffin	1	5	2
Container cargo	4	3	6
All other and unclassified	2	1	1
Total	<u>216</u>	<u>74</u>	<u>28</u>
ASIA TO EAST COAST SOUTH AMERICA:			
Canned and refrigerated foods	2	1	1
Refrigerated foods	2	1	1
Fish	1	.....	1
Other and unclassified	1	1	.....
Chemicals and petroleum chemicals, miscellaneous	2	2	9
Coal and coke (excluding petroleum coke) .....	.....	.....	21
Coke .....	.....	.....	21
Machinery and equipment	33	17	28
Agricultural machinery and implements .....	.....	1	1
Automobiles, trucks, accessories and parts	22	8	9
Construction machinery and equipment	3	2	2
Electrical machinery and apparatus	5	3	6
Motorcycles, bicycles and parts	2	2	5
Other and unclassified	1	1	5
Manufactures of iron and steel	43	49	63
Angles, shapes and sections .....	.....	1	9
Plates, sheets and coils	8	12	15
Tubes, pipes and fittings	25	24	23
Wires, bars and rods	3	2	10
Other and unclassified	7	10	6
Nitrates, phosphates and potash .....	.....	1	3
Fertilizers, unclassified .....	.....	1	3

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
ASIA TO EAST COAST SOUTH AMERICA—			
Continued			
Ores and metals	117	48	16
Ores	116	45	12
Alumina/bauxite	23	20	5
Manganese	7	3	.....
Other and unclassified	86	22	7
Metals	1	3	4
Tin, including tinplate .....	.....	1	.....
Other and unclassified	1	2	4
Other agricultural commodities .....	.....	.....	10
Cotton .....	.....	.....	6
Oilseeds .....	.....	.....	1
Rubber, raw .....	.....	.....	3
Miscellaneous	187	104	112
Carbon black .....	.....	1	1
Flour, wheat .....	.....	.....	1
Oil, vegetable	6	3	.....
Resin	1	.....	1
Rubber, manufactured	1	2	.....
Textiles .....	.....	1	.....
Container cargo	123	74	64
All other and unclassified	56	23	45
Total	384	221	263
ASIA TO CRISTOBAL, R.P.:			
Lumber and products, miscellaneous	1	1	1
Machinery and equipment	2	.....	.....
Automobiles, trucks, accessories and parts	2	.....	.....
Manufactures of iron and steel	24	13	6
Angles, shapes and sections .....	.....	.....	1
Plates, sheets and coils	15	9	2
Tubes, pipes and fittings	3	2	1
Wire, bars and rods	1	2	2
Other and unclassified	5	.....	.....
Ores and metals	2	1	.....
Metals	2	1	.....
Iron	1	.....	.....
Tin, including tinplate	1	1	.....
Miscellaneous	355	300	254
Groceries, miscellaneous .....	.....	.....	2
Textiles .....	.....	1	.....
Container cargo	345	286	246
All other and unclassified	10	13	6
Total	384	317	262
ASIA TO WEST INDIES:			
Canned and refrigerated foods	37	47	51
Canned foods	19	16	12
Fish	4	3	8
Fruit	1	.....	1
Other and unclassified	14	13	3
Refrigerated foods	18	31	39
Fish	14	25	27

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	Fiscal year		
	1991	1990	1989
ASIA TO WEST INDIES—Continued			
Canned and refrigerated foods—Continued			
Refrigerated foods—Continued			
Meat	3	3	11
Other and unclassified	1	3	1
Chemicals and petroleum chemicals	4	18	10
Caustic soda	1	...	...
Chemical, unclassified	2	18	10
Petroleum chemicals, miscellaneous	1	...	...
Coal and coke (excluding petroleum coke) .....	...	11	7
Coal .....	...	11	7
Grains	271	337	222
Corn	2	3	9
Rice	224	230	152
Soybeans	39	90	61
Other and unclassified	6	14	...
Lumber and products	83	225	239
Boards and planks	81	213	218
Plywood, veneers, composition board	2	4	4
Pulpwood .....	...	3	11
Other and unclassified .....	...	5	6
Machinery and equipment	133	119	107
Agricultural machinery and implements	1	2	1
Automobiles, trucks, accessories and parts	104	105	97
Construction machinery and equipment	3	5	4
Electrical machinery and apparatus	3	4	5
Motorcycles, bicycles and parts	21	...	...
Other and unclassified	1	3	...
Manufactures of iron and steel	24	62	80
Angles, shapes and sections	1	1	3
Nails, tacks and spikes	2	2	4
Plates, sheets and coils	10	27	37
Tubes, pipes and fittings	6	18	10
Wires, bars and rods	2	14	21
Other and unclassified	3	...	5
Minerals, miscellaneous	2	2	1
Borax .....	...	1	...
Soda and sodium compounds	2	1	1
Nitrates, phosphates and potash	8	5	6
Ammonium compounds .....	...	2	...
Fertilizers, unclassified	8	3	6
Ores and metals	9	13	8
Ores, miscellaneous	7	8	4
Metals	2	5	4
Lead	1	...	...
Tin, including tinplate	1	4	3
Zinc .....	...	...	1
Other and unclassified .....	...	1	...
Other agricultural commodities	38	89	63
Beans, edible	35	36	26
Cotton, raw	1	1	1
Oilseeds .....	...	51	36
Rubber, raw	2	1	...
Petroleum and products	19	...	98

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

		<i>Fiscal year</i>		
		1991	1990	1989
ASIA TO WEST INDIES—Continued				
Petroleum and products—Continued				
Asphalt . . . . .		.....	.....	1
Diesel oil . . . . .		.....	.....	41
Gasoline		19	.....	56
Miscellaneous		310	358	414
Bricks and tile		1	4	1
Carbon black		7	.....	1
Cement		1	3	4
Clay, fire and china		1	6	7
Fibers, plant		2	4	.....
Flour, wheat . . . . .		.....	.....	5
Glass and glassware		2	5	6
Groceries, miscellaneous		5	1	1
Oil, coconut . . . . .		.....	.....	5
Oil, vegetable		20	9	12
Paper and paper products		5	17	21
Porcelainware		1	1	.....
Resin . . . . .		.....	.....	1
Rubber, manufactured		4	8	7
Seeds, excluding oilseeds		15	.....	.....
Textiles		5	2	4
Wax, paraffin		1	1	1
Container cargo		185	212	243
All other and unclassified		55	85	95
Total		938	1,288	1,306
ASIA TO EUROPE:				
Canned and refrigerated foods, miscellaneous		9	5	10
Refrigerated foods		9	5	10
Fish		6	5	7
Other and unclassified		3	.....	3
Chemicals and petroleum chemicals		78	72	50
Caustic soda		1	.....	.....
Chemicals, unclassified		65	49	26
Petroleum chemicals, miscellaneous		12	23	24
Coal and coke (excluding petroleum coke) . . . . .		.....	52	14
Coal . . . . .		.....	52	14
Machinery and equipment		23	27	1
Agricultural machinery and implements . . . . .		.....	3	.....
Automobiles, trucks, accessories and parts		16	14	1
Construction machinery and equipment		6	7	.....
Other and unclassified		1	3	.....
Manufactures of iron and steel		60	.....	.....
Plates, sheets and coils		8	.....	.....
Tubes, pipes and fittings		28	.....	.....
Wire, bars and rods		4	.....	.....
Other and unclassified		20	.....	.....
Ores and metals		21	18	.....
Ores		16	18	.....
Iron . . . . .		.....	4	.....
Other and unclassified		16	14	.....
Metals		5	.....	.....
Copper		3	.....	.....
Other and unclassified		2	.....	.....

**Table 11.—Important Commodity Shipments over Principal Trade Routes
Pacific to Atlantic—Continued**

[Thousands of long tons]

	<i>Fiscal year</i>		
	1991	1990	1989
ASIA TO EUROPE—Continued			
Petroleum and products	5	.....	.....
Fuel oil, residual	1	.....	.....
Liquefied gas	1	.....	.....
Lubricating oil	3	.....	.....
Miscellaneous	<u>194</u>	<u>170</u>	<u>162</u>
Oil, coconut .....	.....	1	1
Oil, fish	24	54	80
Oil, vegetable .....	.....	1	.....
Seeds, excluding oilseeds .....	.....	8	.....
Container cargo	<u>163</u>	<u>97</u>	<u>68</u>
All other and unclassified	<u>7</u>	<u>9</u>	<u>13</u>
Total	<u><u>390</u></u>	<u><u>343</u></u>	<u><u>237</u></u>

Table 12.—Principal Canal Commodities by Direction—Fiscal Year 1991

Commodity	[Long tons]	Atlantic to Pacific	Pacific to Atlantic	Total
Ammonium compounds	778,161	24,759	802,920	
Asbestos	28,067	392	28,459	
Asphalt	69,506	1,151	70,657	
Automobiles, trucks, and accessories	235,193	1,377,951	1,613,144	
Bananas	8,091	2,114,638	2,122,729	
Barley	109,988	595,404	705,392	
Beans, edible	10,805	63,238	74,043	
Benzene	213,643	12,787	226,430	
Borax	967	398,274	399,241	
Bricks and tile	13,013	3,509	16,522	
Canned food products	17,884	139,773	157,657	
Carbon black	81,246	11,381	92,627	
Caustic soda	1,014,209	28,710	1,042,919	
Cement	948,476	5,089	953,565	
Chemicals, petroleum various	1,511,738	64,600	1,576,338	
Chemicals, various	3,868,760	1,060,583	4,929,343	
Clay, fire and china	708,211	20,893	729,104	
Coal and coke (excluding petroleum coke)	4,635,573	3,755,915	8,391,488	
Cocoa and cacao beans	2,294	43,769	46,063	
Coffee	458	318,086	318,544	
Coke, petroleum	747,790	2,364,513	3,112,303	
Container cargo	11,628,270	9,567,142	21,195,412	
Copra and coconuts		5,610	5,610	
Corn	14,985,104	47,604	15,032,708	
Cotton, raw	66,651	61,444	128,095	
Fertilizers, various	2,352,320	75,200	2,427,520	
Fibers, plant	1,499	2,918	4,417	
Fishmeal	13,250	795,327	808,577	
Flour, wheat	194,007	287	194,294	
Gasoline	1,804,491	1,162,026	2,966,517	
Glass and glassware	5,066	4,677	9,743	
Grains, various	399,660	48,915	448,575	
Groceries, various	47,783	51,591	99,374	
Infusorial earth	1,829	14	1,843	
Jet fuel	819,411	26,365	845,776	
Kerosene	199,644	.....	199,644	
Liquefied gas	1,338,113	40,953	1,379,066	
Liquors	2,095	9,009	11,104	
Lumber and products (excluding pulpwood)	2,659,387	3,825,191	6,484,578	
Machinery, agricultural	32,370	10,648	43,018	
Machinery, construction	70,599	58,882	129,481	
Machinery, electrical	21,080	25,762	46,842	
Machinery, various	36,912	63,362	100,274	
Manufactures of iron and steel	5,444,528	2,808,047	8,252,575	
Metal, aluminum	502,755	12,136	514,891	
Metal, copper	3,281	978,420	981,701	
Metal, iron	193,836	18,777	212,613	
Metal, lead	1,178	104,111	105,289	
Metal, zinc	8,458	178,160	186,618	
Metal, scrap	2,101,720	24	2,101,744	
Metals, various (including tinplate)	53,272	48,082	101,354	
Molasses	16,907	632,674	649,581	
Nitrate of soda	19,817	295,512	315,329	
Oats	99,400	1,295	100,695	
Oil, coconut	7,574	45,669	53,243	
Oil, crude	3,214,813	5,023,724	8,238,537	
Oil, diesel	1,368,112	141,003	1,509,115	
Oil, fish	1,059	144,134	145,193	
Oil, lubricating	578,362	129,358	707,720	

Table 12.—Principal Canal Commodities by Direction—Fiscal Year 1991—Continued

[Long tons]

Commodity	Atlantic to Pacific	Pacific to Atlantic	Total
Oil, residual fuel	2,505,505	2,036,758	4,542,263
Oil, vegetable	235,029	191,224	426,253
Oilseeds	96,646	32,614	129,260
Ore, alumina/bauxite	162,135	1,706,232	1,868,367
Ore, copper	25,576	488,105	513,681
Ore, iron	161,273	294,727	456,000
Ore, lead	15,065	242,503	257,568
Ore, manganese	91,773	172,229	264,002
Ore, zinc	24,105	927,195	951,300
Ores, various	307,247	2,543,580	2,850,827
Paper and paper products	1,069,013	550,512	1,619,525
Peas, dry	10,983	35,521	46,504
Petroleum and products, various	390,253	37,946	428,199
Phosphates	9,209,620	338,912	9,548,532
Potash	782,569	31,974	814,543
Pulpwood	1,005,572	2,057,877	3,063,449
Refrigerated food products (excluding bananas).	804,365	2,974,824	3,779,189
Resin	80,949	1,439	82,388
Rice	162,322	419,056	581,378
Rubber, manufactured	11,319	4,855	16,174
Rubber, raw	2,258	36,216	38,474
Salt	29,376	1,138,723	1,168,099
Seeds, excluding oilseeds	344	24,112	24,456
Slag, clinkers, and dross	239,718	5,414	245,132
Soda and sodium compounds	63,083	322,641	385,724
Sorghum	1,734,076	.....	1,734,076
Soybeans	6,264,892	38,691	6,303,583
Sugar	1,640,373	2,053,143	3,693,516
Sulfur	239	2,953,596	2,953,835
Tallow	126,020	28,387	154,407
Textiles	8,484	17,712	26,196
Tobacco and manufactures	263	79	342
Toluene	279,984	14,289	294,273
Wax, paraffin	2,928	10,591	13,519
Wheat	5,828,188	2,160,983	7,989,171
Wool, raw	592	2,623	3,215
All other	789,505	490,807	1,280,312
Total	<u>99,460,328</u>	<u>63,235,558</u>	<u>162,695,886</u>

Other Statistics

Table 13.—Water Supply and Usage

	Fiscal year		Percent of usage Fiscal year	
	1991 (000's of Acre-feet)	1990	1991	1990
MADDEN AND GATUN LAKE WATER SUPPLY:				
Total runoff, Madden Lake Basin	1,788	1,948		
Evaporation from Madden Lake	<u>—38</u>	<u>—40</u>		
Available for Madden Lake usage	1,750	1,908		
Municipal water use Madden Lake	<u>—120</u>	<u>—120</u>		
Available for downstream usage	1,630	1,788		
Total runoff, Gatun Lake (area below Madden)				
2,401 2,441				
Subtotal	4,031	4,229		
Evaporation from Gatun Lake	<u>—418</u>	<u>—437</u>		
Available for Gatun Lake watershed usage	3,613	3,793		
MADDEN LAKE WATER USAGE:				
Hydroelectric power	1,558	1,667	89	89
Leakage	14	14	1	1
Spillway discharge	52	74	3	4
Municipal	<u>120</u>	<u>120</u>	<u>7</u>	<u>6</u>
Total Madden Lake usage	1,744	1,875	100	100
GATUN LAKE WATER USAGE:				
Hydroelectric power	988	1,390	27	38
Lockages, Gatun and Pedro Miguel	2,123	1,970	58	54
Municipal and other usages	112	110	3	3
Spillway discharge	<u>429</u>	<u>205</u>	<u>12</u>	<u>5</u>
Total Gatun Lake usage	<u>3,652</u>	<u>3,675</u>	<u>100</u>	<u>100</u>

Table 14.—Dredging Operations—Fiscal Year 1991

	(Cubic yards)		
	Earth	Rock	Total
Pacific District (Maintenance)	N/A	15,075	15,075
Pacific Entrance Widening	534,050	167,450	701,500
Grand Total	<u>534,050</u>	<u>182,525</u>	<u>716,575</u>

Table 15.—Electrical Power Generated

(Gigawatt hours)¹

	Fiscal year	
	1991	1990
Generation:		
Gatun hydro station	63	87
Madden hydro station	185	197
Thermal generating stations	333	267
Gross generated by Panama Canal Commission	581	551
Less station service usage	(14)	(11)
Net total generated by Panama Canal Commission	<u>567</u>	<u>540</u>
Power Purchases:		
Through interconnections from Panama	3	10
Net Energy received for Wheeling	5	3
Power Sales:		
Through interconnections to Panama	(42)	(22)
Net power generated and purchased for Canal area only	533	531
Other power generated by military for own use .....	.....	1
Total Canal area requirements	<u>533</u>	<u>532</u>
Power distributed to Commission's customers	510	497
Transmission and Distribution losses	23	35
Peak load (thousands of kilowatts)	85.1	84.6
Date of peak load	June 12	June 19
Canal area load factor ²	72%	72%

¹ One gigawatt hour equal to 1 million kilowatt hours.² Total Canal area requirements divided by number of hours per year times peak load.

Table 16.—Fire Division Statistics

	Fiscal Year 1991		Fiscal Year 1990	
	Number of fires	Property loss	Number of fires	Property loss
Panama Canal Commission ¹	70	\$ 17,654	47	\$ 8,575
Armed Forces ²	215	613,687	229	568,795
Private (including ships) ³	81	8,570,239	93	469,984
Republic of Panama ⁴	<u>85</u>	<u>4,050</u>	<u>95</u>	<u>148</u>
Total	<u>451</u>	<u>\$9,205,630</u>	<u>464</u>	<u>\$1,047,502</u>
			FY 1991	FY 1990
Total calls minus fires ⁵			6,068	5,470
Total number of calls (all types) responded to			6,519	5,934

¹ Figure includes \$5,000.00 fire loss of transformer, situated north west of Miraflores locks. Also includes \$2,800.00 fire loss of an air compressor at Pedro Miguel Locks, east side.² This amount includes \$517,000 fire loss at Bldg. 29 (Boat House), Ft. Sherman.³ Figure includes \$6,500,000 fire loss of a fishing trawler.

Also includes \$2,000,000 fire loss on a cruise ship. Fire Division participated in providing assistance during the investigation of the cause of the fire.

⁴ Responses made to areas reverted to the Republic of Panama but responded by Commission forces, such as grass fires, railroad fires, etc. . .

The figure for FY 91 includes property loss of \$3,300 due to fire on a Panama Railroad rolling stock.

⁵ Includes responses to all types of emergencies (ambulance and fire apparatuses).

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